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(10) 日本国特許庁 (J P)

(12) 公開特許公報 (A)

(11) 特許出願公開番号

特開平9-255207

(43) 公開日 平成9年(1997)9月30日

(51) Int. Cl. ⁶	識別記号	片内整理番号	P I	技術表所属所
B 6 5 H 31/00			B 6 5 H 31/00	Z
B 4 1 J 13/00			B 4 1 J 13/00	
G 0 6 F 3/12			G 0 6 F 3/12	D
7/24			7/24	A
B 6 5 H 33/06			B 6 5 H 33/06	

特許請求 発願請求 請求項の数 7 O L (全 23 頁)

(21) 出願番号 特願平9-60783

(22) 出願日 平成9年(1997)3月18日

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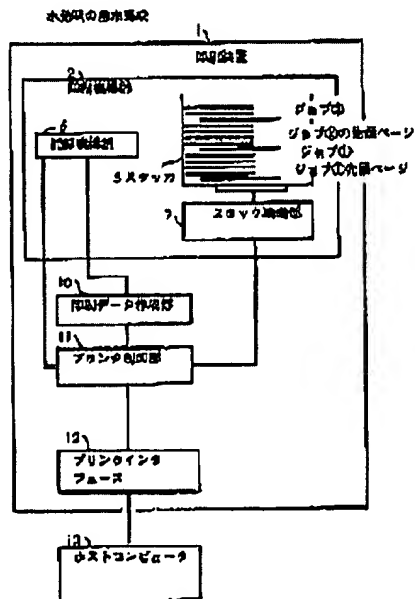
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(54) 【発明の名称】 印刷装置

(57) 【要約】

【課題】 複数のジョブを連続的に印刷処理できる印刷装置に関し、ジョブを安定に堆積できるようにするとともにジョブ毎の内容およびエラー発生等をユーザが容易にわかるように堆積することを目的とする。

【解決手段】 複数のジョブを連続して印刷することおよび印刷して排出されるページを堆積するスタックを初期位置から移動してオフセットする印刷機構部を備える印刷装置において、印刷内容もしくは印刷状態を表す印刷情報を印刷し、印刷されたページをオフセットスタックし、本来の印刷データを印刷したページはスタック位置を初期位置に戻して排出する機能を持つ。



【特許請求の範囲】

【請求項1】 複数のジョブを連続して印刷することおよび印刷して排出されるページを堆積するスタッカを初期位置から移動してオフセットする印刷機構部を備える印刷装置において、印刷内容もしくは印刷状態を表す印刷情報を印刷し、印刷されたページをオフセットスタックし、本来の印刷データを印刷したページはスタック位置を初期位置に戻して排出することを特徴とする印刷装置。

【請求項2】 印刷情報を印刷用紙のオフセットスタックにおいてはみ出した位置に印刷することを特徴とする請求項1に記載の印刷装置。

【請求項3】 両面印刷機構部を備え、スタッカにおいて上を向く面に印刷情報を印刷することを特徴とする請求項1もしくは2に記載の印刷装置。

【請求項4】 印刷情報は各ジョブの開始を表すジョブ識別情報であることを特徴とする請求項1、2もしくは3に記載の印刷装置。

【請求項5】 異常発生もしくはエラーのリカバリを検出する検出部を備え、印刷情報は印刷異常の発生もしくは誤リカバリを通知するエラー情報であり、該印刷機構部は異常発生もしくはリカバリに応じてスタッカを移動し、エラー情報を印刷したページをオフセット位置にスタックすることを特徴とする請求項1、2、3もしくは4に記載の印刷装置。

【請求項6】 印刷用紙を供給する複数の供給装置と印刷中に供給装置を切り換える給紙装置選択部とを備え、印刷すべきデータを印刷するための印刷用紙Aを供給する供給装置Aと異なる供給装置Bに該印刷用紙Aと異なる色の印刷用紙Bをセットしておき、該印刷情報を該印刷用紙Bにより印刷することを特徴とする請求項1、2、3、4もしくは5に記載の印刷装置。

【請求項7】 ジョブ識別情報のオフセットの位置とエラー情報のオフセットの位置が異なるものであることを特徴とする請求項1、2、3、4、5もしくは6に記載の印刷装置。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】 本発明は、複数のジョブを連続的に印刷処理できる印刷装置に関する。大量の印刷ページをもつ複数のジョブを連続的に印刷するような場合、スタックされた印刷結果のジョブの区切りが、ユーザに容易にわかるようにする必要がある。本発明は、このような印刷装置において、ジョブを安定に堆積できるようにするとともにジョブ毎の内容およびエラー発生等をユーザが容易にわかるように印刷物をスタッカに堆積できるようにしたものである。

【0002】

【従来の技術】 図15は従来の印刷装置である。図15において、210は印刷装置である。

【0003】 211は印刷機構部である。221は給紙機構部であって、給紙装置222に保持されている印刷用紙を一枚ずつ取り出して印刷記録部225の側に供給するものである。

【0004】 222は給紙装置であって、印刷用紙を保持するものである。223は印刷用紙であって、給紙装置222から取り出される印刷用紙である。

【0005】 224は印刷された印刷用紙である。225は印刷記録部であって、印刷データを印刷用紙223に記録するものである。

【0006】 226は記録機構部であって、印刷記録部225を駆動するものである。227はスタッカであって、印刷された印刷用紙を保持するものである。228はスタック機構部であって、スタッカ227を駆動する機構であって、スタッカを移動させて、印刷用紙の堆積位置を定めるものである。

【0007】 231、232、233、234、235はローラであって、印刷用紙223を給紙装置222の側からスタッカ227の側に移送するものである。251は印刷データ作成部であって、印刷記録部225により印刷する印刷データを作成するものである。

【0008】 252はプリンタ制御部であって、印刷機構部211の基機構部、印刷データ作成部251等を制御して印刷制御するものである。260はプリンタインタフェースであって、ホストコンピュータ260から転送される印刷データ、制御信号を入力するものである。

【0009】 260はホストコンピュータである。図16は従来の印刷装置の動作のフローチャートである。図17は従来の印刷装置のスタック方法の説明図である。

【0010】 図17において、227はスタッカである。図17はジョブ①とジョブ②の印刷ページを堆積（スタック）する場合を示す。ジョブ②の印刷ページをスタックした後、スタッカ227を移動してオフセットし、オフセットスタックする。また、スタッカ227において、印刷された面（表）は下を向き、印刷の裏面は上向きである。

【0011】 図16、図17を参照して図15の構成の動作を説明する。プリンタインタフェース253はホストコンピュータ260から送られてくる印刷データと制御信号を受け取る。プリンタ制御部252は制御信号に従って、印刷データ作成部251、給紙機構部221、記録機構部226、スタック機構部228を制御する。この時、2回目以降のジョブの印刷ではスタッカを移動してオフセットする。そして、印刷データ作成部251は受け取った印刷データを例えば、1ページ単位にフォーマットした印刷データとして記録機構部226に転送する。記録機構部226に1ページ分の印刷データが転送されると、給紙機構部221に制御されて給紙装置222から印刷用紙が1枚取り出され、印刷記録部225に移送される。記録機構部226に駆動されて印刷記録

部225は印刷用紙223に1ページ分の印刷データを印刷する。印刷された印刷用紙224はスタッカ227に排出される。

【0012】ジョブ④の印刷が全て終了すると、スタック機構部228はスタッカ227を移動してオフセットする(図17参照)。そして、上記の処理をジョブ⑤について繰り返して行い、ジョブ⑥の印刷を行う。このようにして、ジョブ④とジョブ⑥の印刷物がオフセット量だけずれて堆積され、両者が区別できるようにする。

【0013】図18は、従来の印刷装置の動作のフローチャートである。

S1 ジョブを開始する。

S2 スタッカをオフセットする(オフセットスタックする位置にスタッカを移動する(第1回目のジョブは初期位置としてオフセットスタックしない))。

【0014】S3 1ページずつ印刷する。

S4 ジョブ単位の最終ページか判定する。最終ページでなければS3で次のページを印刷する。最終ページであればS5に進む。

【0015】S5 次のジョブがあるか判定し、次のジョブがあればS2以降の処理を繰り返す。次のジョブがなければS6に進む。

S6 印刷処理を終了する。

【0016】

【発明が解決しようとする課題】従来の印刷装置は、ジョブ単位で全ページがオフセット位置にスタックされるので、複数ジョブがスタックされている場合、印刷物をスタッカから取り出す時に印刷物がくずれ易かった。また、スタッカにおいて印刷面が下を向き、裏面が上を向いているので、ジョブ毎の区別はつくが、それぞれがどのような内容のものであるかを確認することは、そのままではできず、用紙を裏返さなければならなかった。そして、その時にスタッカの状態が崩れることがあったりして扱いにくいものであった。

【0017】また、従来の印刷装置は、印刷において異常が発生し、例えば、エラーのためにデータが再送信されたりした等で同じページが重複して印刷されたりしても、通常どおりに堆積されるので、オペレータには重複があることがわからず、そのまま処理されていた。

【0018】本発明は、スタッカにおいて印刷物を安定に堆積でき、あるいは用紙をひっくり返さなくてもジョブの内容を容易に認識することのできる印刷装置を提供することを目的とする。また、印刷において異常が発生した場合にも、スタッカにスタックされている状態で異常の発生が容易に認識できる印刷装置を提供することを目的とする。

【0019】

【課題を解決するための手段】本発明は、複数ジョブを連続して印刷することおよび印刷して排出されるページを堆積するスタックを初期位置から移動してオフセット

するスタック位置変更機構部を備える印刷装置において、印刷内容もしくは印刷状態を表す印刷情報を印刷し、印刷されたページをオフセットスタックし、本来の印刷データを印刷したページはスタック位置を初期位置に戻して排出するようにした。

【0020】図1は、本発明の基本構成を示す図である。図1において、1は印刷装置である。

【0021】2は印刷機構部であって、印刷用紙の給紙、印刷データの印刷、印刷用紙の堆積、スタッカ5の移動等を行う機構である。6はスタッカであって、排出される印刷物を堆積するものである。

【0022】8は記録機構部であって、印刷データを印刷用紙に印刷する機構である。7はスタック機構部であって、スタッカ6を移動する機構である。10は印刷データ作成部であって、ホストコンピュータ13から送信される印刷データに基づいて印刷用紙に記録する本来の印刷データおよび印刷情報(ジョブ識別情報もしくはエラー情報(エラーの発生情報、エラーの回復のリカバリ情報等))を作成するものである。

【0023】11はプリンタ制御部であって、記録機構部8の各機構部、印刷データ作成部10を制御するものである。12はプリンタインタフェースであって、ホストコンピュータ13から送信される印刷データ、制御信号等を入力するものである。

【0024】13はホストコンピュータであって、印刷データを作成し、印刷装置1に転送するものである。図1の本発明の基本構成の動作を説明する。

【0025】プリンタインタフェース12はホストコンピュータ13から転送される印刷データ、制御信号を入力する。プリンタ制御部11は制御信号に従って、印刷データ作成部10、印刷機構部2を制御する。印刷データ作成部10は記録機構部8により印刷するための、例えば、1ページ単位にフォーマットした印刷データを作成する。プリンタ制御部11に制御され、スタック機構部7はジョブが開始された時、あるいはエラーが発生した時、エラーが回復してリカバリ情報が発生した時にスタッカ6を移動してオフセットする。通常印刷の第1ページの前のページ(先頭ページとする)にジョブの内容を表す印刷情報(ジョブ識別情報)あるいはエラーが生じた場合あるいはエラーのリカバリを表す印刷情報(エラー情報)を印刷し、スタッカ5にオフセットスタックする。そこで、プリンタ制御部11はスタック機構部7を制御し、スタッカ5の位置を元の位置(初期位置)に戻す。そして、そのスタッカ5の位置で通常の印刷を行い、印刷された各ページをスタッカ6に堆積する。

【0026】ジョブ④が終了し、さらに次のジョブ⑤がある場合には、プリンタ制御部11はスタック機構部7を制御し、再度、スタッカ6をオフセット位置に移動する。そして、印刷データ作成部10は次のジョブ⑤の内容を表すジョブ識別情報を作成し、記録機構部8に出力

する。そして、記録機構部8は印刷用紙にジョブ識別情報を印刷し、ジョブの先頭ページとしてスタッカ5に排出する。先頭ページの排出が終了すると、スタック機構部7はスタッカ5を初期位置に戻し、ジョブ①を通常印刷する。また、エラーの発生もしくはエラーのリカバリがなされた時にはエラー情報を印刷してオフセットスタックする。

【0027】ここで、ジョブ識別情報を印刷する位置は印刷用紙の表面でも裏面でも良いが、特に、裏面であってオフセットにより通常印刷の堆積からはみ出す箇所に印刷するようにすれば、ジョブの内容を印刷用紙の表を返すことなく容易に認識することができる。

【0028】さらに、印刷異常を検出して、印刷異常が発生した場合にエラー情報を印刷してオフセットスタックするので、エラーの発生、リカバリ等でその後に継続される印刷開始ページがエラーの発生以前にすでに印刷されているページと重複しているような場合にもその重複を容易に認識できるようになる。

【0029】図2 (a)は本発明の基本構成の印刷装置の動作のフローチャートである。

S1 スタッカを初期位置に設定する。

S2 ジョブを開始する。あるいはエラーもしくはエラーのリカバリ等を検出する。

【0030】S3 印刷情報を作成する。

S4 スタッカを移動してオフセットする。

S5 印刷情報を印刷し、印刷したページをスタッカに排出する。

【0031】S6 スタッカを初期位置に戻す。

S7 通常印刷をする。

図2 (b) は本発明の印刷物の堆積状態を示す図であり、印刷情報を印刷したページをオフセットスタックした状態を示す。

【0032】図示のように、ジョブ識別情報①を印刷したページをオフセットスタックし、スタッカを初期位置に戻してジョブ①の本来の印刷ページを堆積し、次にジョブ識別情報②を印刷したページをオフセットスタックし、スタッカを元の位置に戻してジョブ②の本来の印刷ページを堆積する。そして、ジョブ②の間にエラーが発生したのでエラー情報を印刷してオフセットスタックし、エラーが回復して元のスタッカの位置で本来の印刷を継続した状態を示す。

【0033】そのため、印刷物の堆積は全て同じ位置に堆積され、大量のジョブを複数連続して印刷する場合にも堆積が崩れることがない。また、ジョブの区切りを簡単に認識することができる。特に、図示のように先頭ページの裏面にジョブ識別情報を印刷した場合には、ジョブの区切りをスタッカに堆積した状態で認識できるので作業者はジョブの内容を簡単に認識することができる。

【0034】さらに、エラーが発生して、自動的に回復して印刷が継続されたような場合にも、エラー情報を

ジョブ識別情報として印刷してオフセットスタックすることにより、エラー発生、エラーのリカバリで印刷が再開された時に印刷したページがエラー発生前のページと重複して印刷されたような場合にも重複したページを確実に認識できるようになる。

【0035】

【発明の実施の形態】図3は本発明のジョブ識別情報の例である。図3 (a)はジョブの連続番号をジョブ識別名とするものである。

10 【0036】図3 (b)は、印刷データに含まれるユーザ名、時間等の拡張識別情報をジョブ識別情報として表示したものである。図3 (c)はジョブ実行中に印刷終了側のディスプレイに表示されるジョブ名をジョブ識別情報としたものである。

【0037】図3 (d)は印刷データ（通常印刷で印刷される本来の印刷データ）の第1ページを複写し、ジョブ識別情報としたものである。図3 (e)は印刷用紙のジャム等のエラーが発生した時にエラーの発生がわかるように、エラー情報（図はエラーコードの場合である）をジョブ識別情報としたものである。

20 【0038】図3 (f) は、エラーが回復して印刷が継続されるとき、リカバリがわかるように、ホストコンピュータから転送されるリカバリ情報（recover y）を印刷情報としたものである。

【0039】図4は本発明の実施例1の構成であって、ジョブの開始により印刷情報としてジョブ識別情報を印刷した先頭ページをオフセットスタックする場合の構成である。

【0040】図4において、31は印刷装置である。32は印刷機構部である。

30 【0041】35は記録機構部である。36はスタック機構部である。41は印刷データ作成部である。

【0042】42は印刷情報印刷位置設定部であって、ジョブ識別情報の印刷位置を定めるものである。45はプリンタ制御部である。

【0043】46はジョブ開始検出部であって、ホストコンピュータ52から転送されてくる制御信号に基づいてジョブの開始を検出するものである。47はスタック位置変更部であって、ジョブ開始の検出によりスタッカ（図示せず）を移動してオフセットし、ジョブ識別情報を印刷した先頭ページをオフセットスタックした後に元の位置（初期位置）に戻すものである。

【0044】48は印刷情報作成部であって、オフセットスタックする先頭ページに印刷するジョブ識別情報を作成するものである。ジョブ識別情報は、単にジョブの開始を表す情報であっても良いが、ジョブの内容を表すようにしても良い。例えば、ユーザ名、印刷時刻等の拡張識別情報を制御信号から獲得し、ジョブ識別情報としても良い。

50 【0045】51はプリンタインタフェースである。5

2はホストコンピュータである。図4の本発明の実施例1の構成の動作を説明する。

【0046】プリンタインタフェース61はホストコンピュータ52から転送される印刷データと制御データを受け取る。ジョブ開始検出部46はジョブが開始を検出すると、スタック位置変更部47はスタック機構部38にスタック（図示せず）をオフセットする。スタック機構部38はスタックをオフセットする。印刷情報作成部48は先頭ページに印刷するジョブ識別情報を作成する。この時、ジョブ識別情報は通常印刷の向きにかかわらず、オフセットスタックによりはみ出した位置に印刷されるように、本来の印刷データの印刷方向にかかわらず一定の向きであるようにする。印刷情報作成部は、ジョブの連続番号を生成する。あるいは、ホスト側で作成された印刷物のユーザ名、時間、ジョブ名等を印刷データから獲得してジョブ識別情報とする。あるいは、印刷データの第1ページを複写してジョブ識別情報とする。印刷データ作成部41において、印刷情報印刷位置設定部42はオフセットスタックにおいて通常印刷の機構からはみ出した位置にジョブ識別情報を印刷するように設定する。記録機構部35は印刷用紙の指定された位置にジョブ識別情報を印刷し、スタック機構部38はその先頭ページをオフセットスタックする。

【0047】先頭ページのオフセットスタックが終了すると、スタック機構部38はスタックを元の位置に戻し、プリンタ制御部45、印刷データ作成部41は通常印刷の処理を行う。

【0048】図4の構成において、印刷情報作成部48は印刷データからジョブのユーザ名、作成日時等の拡張識別情報を抽出し、それをジョブ識別情報としても良い。さらに、印刷情報作成部48は通常印刷する印刷データの第1ページを複写し、その第1ページの複写をジョブ識別情報として先頭ページに印刷し、オフセットスタックするようにしても良い。

【0049】図5は本発明の実施例1の構成のフローチャートである。

S1 スタックを初期位置に設定する。

S2 ジョブの開始を検出する。

【0050】S3 ジョブ識別情報を作成する。

S4 スタックを移動してオフセットする。

S6 ジョブ識別情報を印刷する。

【0051】S6 ジョブ識別情報を印刷したページ（先頭ページ）をオフセットスタックする。

S7 スタックを初期位置に戻す。

【0052】S8 通常印刷をする。

S9 次のジョブがあるか判定し、あればS2以降の処理を繰り返す。なければ、S10に進む。

【0053】S10 ジョブを終了する。

図6は本発明の印刷情報作成部のフローチャートの実施例である。図6(a)はジョブ識別情報にジョブの連続番

号を作成して付与する場合である。

【0054】S1 ジョブ識別情報を作成する処理を開始する。

S2 前回のジョブ識別情報の番号に1を加算して、今回のジョブ識別情報の番号を作成する。

【0055】S3 今回作成したジョブ識別情報の番号を印刷データ作成部に転送する。

S4 前回のジョブ識別情報の番号を保存する。

図6(b)はホストコンピュータから転送される印刷データに含まれるユーザ名、作成時刻等の拡張識別情報を抽出してジョブ識別情報とする場合、あるいはホストコンピュータから転送される印刷データに含まれ、印刷装置側のディスプレイにおいて印刷中に表示するジョブ名をジョブ識別情報とする場合である。

【0056】S1 ジョブ識別情報を作成する処理を開始する。

S2 ホストコンピュータから転送される印刷データからユーザ名、作成時刻等の拡張識別情報を抽出してジョブ識別情報とする。あるいはホストコンピュータから転送される印刷データに含まれるジョブ名を抽出し、ジョブ識別情報とする。

【0057】S3 作成したジョブ識別情報を印刷データ作成部に転送する。

図6(c)は印刷データ（印刷する本来の印刷データ）の第1ページを複写し、それをジョブ識別情報とする場合である。

【0058】S1 ジョブ識別情報を作成する処理を開始する。

S2 印刷データ（本来の印刷データ）の第1ページを複写し、ジョブ識別情報とする。

【0059】S3 作成したジョブ識別情報を印刷データ作成部に転送する。

図7は本発明の実施例2の装置構成である。図7は両面印刷機構を備え、ジョブ識別情報をジョブの先頭ページの裏面に印刷する場合の実施例構成である。

【0060】図7において、図4と同一参照番号は同一部分を表す。印刷機構部32において、33は給紙機構部である。

【0061】34は給紙装置である。38は両面印刷機構部であって、記録機構部35に供給される印刷用紙を裏返して裏面に印刷するように印刷用紙を反転させるものである。

【0062】プリンタ制御部45において、49は両面印刷制御部であって、両面印刷機構部38を制御するものである。図7の構成において、ジョブ開始検出部46はジョブの開始を検出すると、両面印刷制御部49は裏面印刷を指示する（操作の便宜上、両面印刷でも差支えない）。両面印刷機構部38は記録機構部35に供給された先頭ページの印刷用紙を裏返す。

【0063】一方、スタック位置変更部47はジョブ開

始検出部48のジョブの開始を検出によりスタック機構部38にオフセットスタックを指示する。スタック機構部38はスタッカ37を移動してオフセットする。印刷情報作成部48はジョブ識別情報を作成し、印刷データ作成部41に転送する。印刷データ作成部41はジョブ情報を印刷する位置を、オフセットスタックで通常印刷の端からみ出した位置に設定する。記録機構部35は印刷用紙の表面の指定された位置（前記のオフセットスタックではみ出した位置）にジョブ識別情報を印刷する。表面にジョブ識別情報を印刷された先頭ページは両面印刷機構部38により裏面が上になるように表を返され（反転され）、スタッカ37にオフセットスタックされる。

【0064】先頭ページのオフセットスタックが終了すると、スタック機構部38に制御され、スタッカ37が初期位置に戻され、通常印刷がなされる（本来の印刷が片面印刷であれば、両面印刷を解除し、印刷面（表）を下にして増幅する。両面印刷であれば、両面印刷を継続する）。

【0065】図7の構成において、ジョブ識別情報作成部は実施例1と同様に、ジョブ識別情報として、ジョブ名、位置識別情報、もしくは通常印刷の第1ページの複写されたデータ等により作成する。

【0066】図8は本発明の実施例2の構成のフローチャートである。

S1 スタッカを初期位置に設定する。

S2 ジョブの開始を検出する。

【0067】S3 ジョブ識別情報を作成する。

S4 スタッカを移動してオフセットする。

S6 ジョブ識別情報を先頭ページの裏面に印刷する。

【0068】S8 ジョブ識別情報を印刷した面（裏面）を上にしてオフセットスタックする。

S7 スタッカを初期位置に戻す。

【0069】S8 通常印刷をする（裏面は下向きである）。

S9 次のジョブがあるか判定し、あればS2以降の処理を繰り返す。なければ、S10に進む。

【0070】S10 ジョブを終了する。

図9は本発明の装置構成の実施例3である。本発明の実施例3はエラーが発生した場合にエラーの発生を印刷情報として印刷してオフセットスタックすることによりオペレータにエラーの発生が容易にわかるようにしたものである。

【0071】図9において、図4もしくは図7と同番号は同一部分を表す。82はエラー表示情報保持部であって、エラー表示する情報（例えば、エラーコード等）を保持するものである。

【0072】83はエラー検出部であって、印刷機構部32に発生した、印刷用紙のジャム等のエラー、あるいはホストコンピュータ52から通知される異常（エラ

ー）を検出するものである。あるいは、エラーが回復した後にホストコンピュータ52からリカバリ（recovery）が送られてくる場合にリカバリ情報を検出するものである。

【0073】85はホストコンピュータにおいて作成されたリカバリ情報（recovery）を表す。図9において、通常の印刷は前述と同様であり、そのための構成の一部は図示を省略されている。

【0074】図9の構成において、エラー発生した場合の動作を説明する。

① エラー発生を検出してエラー情報を表示する場合
印刷機構部32でエラーが発生すると、エラー検出部83はエラーの発生を検出する。そして、印刷情報作成部48はエラーの発生を表示するための表示情報をエラー表示情報保持部82を参照して作成する。例えば、エラーコードを表示するのであれば、エラー表示情報保持部82はエラーコードを保持していて、印刷情報作成部48はエラーコードをエラー情報とする。エラー検出部83はそのエラーを検出する。エラー検出部83がエラーを検出するとスタック位置変更部49はスタック機構部38にオフセットスタックを通知する。スタック機構部38はスタッカ（図示せず）を移動してオフセットする。

【0075】印刷データ作成部41はエラー表示情報保持部82からエラー表示情報を獲得してエラー情報を作成し、記録機構部35に転送する。記録機構部35はエラー情報を印刷用紙に印刷する。エラー情報を印刷された印刷用紙はオフセットスタックされる。エラー情報を印刷したページのスタックが終了すると、スタック位置変更部49はスタック機構部38にスタックを初期位置に戻すことを指示し、スタック機構部38はスタッカを初期位置に戻す。

【0076】そして、エラーが回復して通常の印刷が継続される。

② エラーが回復した時のリカバリを表すエラー情報（リカバリ情報）を印刷情報として表示する場合
エラーが発生して一時印刷が中断されたが、エラーが回復して、印刷が再開される場合に、エラーが発生したページより数ページ前から印刷を再開する場合がある。このような時、ホストコンピュータ52よりリカバリ（recovery）が通知されれば、印刷情報作成部48はリカバリ情報（recovery）を作成し、印刷してオフセットスタックする。

【0077】エラー検出部83がリカバリを検出すると、スタック位置変更部49はスタック機構部38にオフセットスタックを通知して、スタッカをオフセットする。印刷情報作成部48はホストコンピュータから送られるリカバリ情報を獲得してリカバリ情報を作成し、印刷データ作成部41に転送する。記録機構部35はリカバリ情報を印刷し、オフセットスタックする。リカバリ

情報を印刷したページのオフセットスタックが終了するとスタッカを初期位置に戻し、通常印刷を継続する。

【0078】図9の場合にも、印刷装置に両面印刷機構（図示せず）があれば、エラー表示情報、リカバリ情報を印刷用紙の裏面に印刷し、オフセットすることによりオペレータによるエラーの発生の認識を容易に行うことができる。

【0079】図10は本発明の実施例3のフローチャート1であって、エラーが発生してエラー表示をする場合である。

S1 印刷中にエラーが発生する。

【0080】S2 エラーの発生を検出する。

S3 エラー情報を作成する。

S4 スタッカを移動してオフセットする。

【0081】S5 エラー情報を印刷する（必要ならば裏面印刷する）。

S6 エラー情報を印刷したページをオフセットスタックする。

S7 スタッカを初期位置に戻す。

【0082】S8 エラーが回復したら通常の印刷をする。

図11は本発明の実施例3のフローチャート2であって、エラーが回復してリカバリ情報を受け取った時にリカバリ情報を印刷してオフセットスタックすることによりエラーのリカバリがあったことをオペレータに容易に分かるようにする場合である。

【0083】S1 印刷中にエラーが発生する。

S2 エラーのリカバリ情報（recovery）を検出する。

S3 リカバリ情報（recovery）を印刷情報として作成する。

【0084】S4 スタッカを移動してオフセットする。

S5 リカバリ情報を印刷する（必要ならば裏面に印刷する）。

S6 リカバリ情報を印刷したページをオフセットスタックする（裏面を上向きにする）。

【0085】S7 スタッカを初期位置に戻す。

S8 通常印刷をする。

図12は、本発明の実施例4の装置構成であって、給紙装置を複数台備え、一台には色紙をセットしておき、印刷情報を裏面に印刷してオフセットスタックし、通常印刷はスタックを元の位置に戻して印刷するものである。

【0086】図12の構成において、図4、図7、図9と同じ番号は同一のものである。図12において、33は給紙機構部Aであって、給紙装置A（34）の給紙制御をするものである。

【0087】34は給紙装置であって、通常印刷の印刷用紙を供給するものである。33は給紙機構部Bであって、給紙装置Bの給紙制御を行うものである。34

は給紙装置Bであって、色紙をセットしておくものである。

【0088】46はオフセットスタック検出部であって、ジョブの開始、エラー発生の検出、エラーのリカバリ情報を検出するものであり、前述のジョブ開始検出部、エラー検出部に相当する。

【0089】50は給紙装置選択部であって、給紙装置A（34）、給紙装置B（34）を選択するものである。図12の構成において、オフセットスタック検出部

46はジョブの開始、もしくはエラー発生、エラーのリカバリ情報等を検出すると、スタック機構部36にスタッカ37にオフセットを指示する。スタック機構部36はスタッカ37を移動してオフセットする。両面印刷制御部49はオフセットスタック検出部46からオフセットスタックの通知を受け取ると、両面印刷機構部38に両面印刷を指示する。また、給紙装置選択部50は給紙機構部Bを選択し、給紙機構部B（33）から色紙が、記録機構部35に給紙される。印刷データ作成部41は印刷情報を作成し、印刷データ作成部41に転送する。印刷データ作成部41は印刷情報（ジョブの開始を表すジョブ識別情報、エラー情報、リカバリ情報等）の印刷位置（オフセットスタックによりはみ出す位置）を定め、記録機構部35に転送する。記録機構部35は転送された印刷情報を、色紙の裏面のオフセットスタックによりはみ出す位置に印刷する。印刷情報を印刷された先頭ページはオフセットスタックされる。

【0090】そこで、スタック機構部36はスタッカ37の位置を初期位置に戻す。さらに、給紙装置選択部50は給紙装置A（34）を選択するように給紙機構部A（33）に通知する。印刷データ作成部41は通常印刷の印刷データを作成し、記録機構部35に転送する。記録機構部35は給紙装置A（34）から給紙される印刷用紙に通常の印刷をする。そして、通常の印刷物は初期位置に戻されたスタックに堆積される。

【0091】図13は本発明の実施例4の装置構成のフローチャートである。

S1 スタッカを初期位置に設定する。

S2 オフセットスタックの必要を検出する（ジョブの開始、エラーの検出、リカバリ情報の検出等）。

【0092】S3 印刷情報を作成する。

S4 給紙装置Bを選択する。スタッカをオフセット位置に移動する。

S5 印刷情報（ジョブの開始を表す情報、エラー表示情報、リカバリ情報等）を色紙の先頭ページの裏面に印刷する。

【0093】S6 印刷情報を印刷したページ（先頭ページ）を裏面を上にしてオフセットスタックする。

S7 スタッカを初期位置に戻す。給紙装置Aを選択する。

【0094】S8 通常印刷をする（表面は下向きであ

る)。

S9 次のジョブがあるか判定し、あればS2以降の処理を繰り返す。なければ、S10に進む。

【0095】S10 ジョブを終了する。

なお、本発明の実施例4(図12の構成)において、印刷情報を印刷することなく色紙をオフセットスタックするだけでも良い。

【0096】図14は本発明の実施例5である。本発明の実施例5はオフセットスタックを3段とし、ジョブ開始のジョブ識別情報とエラー情報のオフセットスタックの位置を異ならせるようにしたものである。

【0097】図14(a)はスタッカを横から見た図である。ジョブ①の先頭ページ(ジョブ識別情報を印刷したページ)を一方(図における左側)にオフセットスタックする。次にスタッカを元の位置に戻しジョブ①の本来の印刷ページを堆積する。そこでエラーが発生したのでエラー発生時のエラー情報を他方(図における右側)にオフセットスタックする。エラー回復してジョブ①の通常印刷をスタックする。次に、ジョブ②のジョブ識別情報を印刷した先頭ページを一方(図における左側)にオフセットスタックに印刷する。スタッカを元の位置に戻し、ジョブ②の通常印刷を堆積する。そこで、エラーが発生したのでエラー情報を印刷したページを他方(図における右側)にオフセットスタックする。

【0098】図14(b)はスタッカを上から見た図であり、印刷物の表を返さずに印刷情報(ジョブ識別情報、エラー情報)がスタッカを上から見ただけで認識できる。図14(c)は本発明の実施例5のフローチャートである。

【0099】S1 ジョブ開始を検出する。

S2 ジョブ識別情報を作成する。

S3 スタッカを一方(左)に移動してオフセットスタックする。

【0100】S4 通常印刷をする。

S5 エラー(もしくはリカバリ)を検出したらエラー情報を作成する。

S6 スタッカを他方(右)に移動してオフセットスタックし、エラー情報を印刷する。以後エラーが回復したらスタッカを左に移動し、通常印刷を継続する。

【0101】

【発明の効果】本発明によれば、印刷物の堆積は全て同じ位置に堆積され、大量のジョブを複数連続して印刷する場合にも堆積が崩れることがない。また、ジョブの区切りを簡単に認識することができ、特に、印刷用紙の裏面にジョブ識別情報を印刷した場合には、ジョブの区切りをスタッカに堆積した状態で認識できるので作業者はジョブの内容を簡単に認識することができる。

【0102】さらに、エラーが発生して、自動的に回復

して印刷が継続されたような場合にも、エラー情報を印刷情報として印刷してオフセットスタックすることにより、エラー発生、エラーのリカバリで印刷が再開された時に印刷したページがエラー発生前のページと重複して印刷されたような場合にも重複したページを簡単に認識できるようになる。

【0103】そのため、本発明によれば、大量に複数のジョブを印刷するような場合に作業能率を大幅に向上させることができる。

【図面の簡単な説明】

【図1】本発明の基本構成を示す図である。

【図2】本発明の基本構成の印刷装置の動作フローチャートおよび堆積方法を示す図である。

【図3】本発明の印刷情報の例を示す図である。

【図4】本発明の実施例1の構成を示す図である。

【図5】本発明の実施例1の構成のフローチャートを示す図である。

【図6】本発明のジョブ識別情報作成部の処理のフローチャートの実施例を示す図である。

【図7】本発明の実施例2の装置構成を示す図である。

【図8】本発明の実施例2の構成のフローチャートを示す図である。

【図9】本発明の実施例3の装置構成を示す図である。

【図10】本発明の実施例3のフローチャート1を示す図である。

【図11】本発明の実施例3のフローチャート2を示す図である。

【図12】本発明の実施例4の装置構成を示す図である。

【図13】本発明の実施例4の装置構成のフローチャートを示す図である。

【図14】本発明の実施例5を示す図である。

【図15】従来の技術を示す図である。

【図16】従来の印刷装置の動作のフローチャートを示す図である。

【図17】従来の印刷装置のスタック方法を示す図である。

【符号の説明】

1：印刷装置

2：印刷機構部

5：スタッカ

6：記録機構部

7：スタック機構部

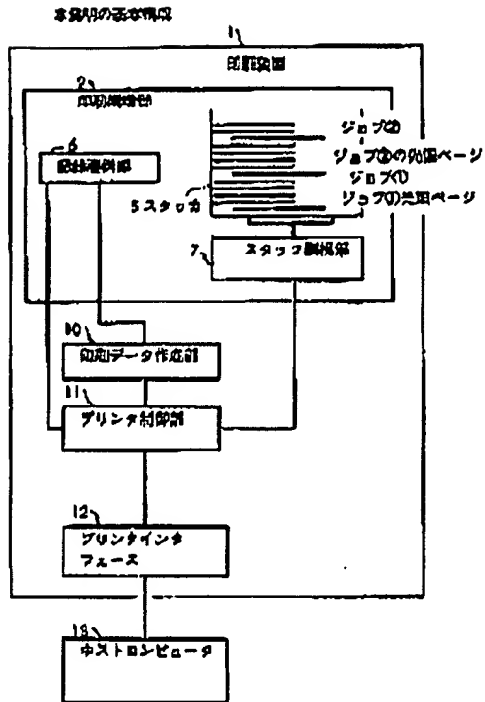
10：印刷データ作成部

11：プリンタ制御部

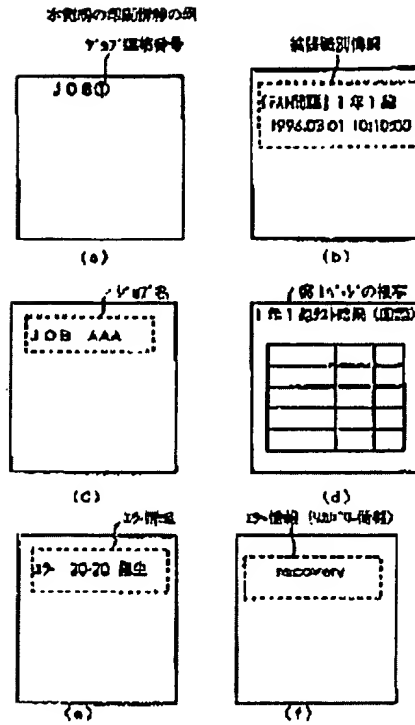
12：プリンタインタフェース

13：ホストコンピュータ

【図1】

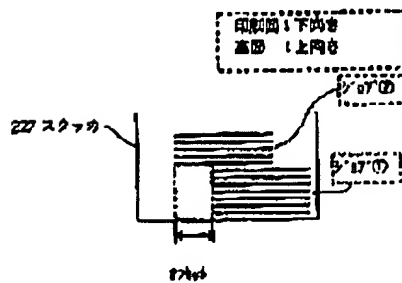


【図3】



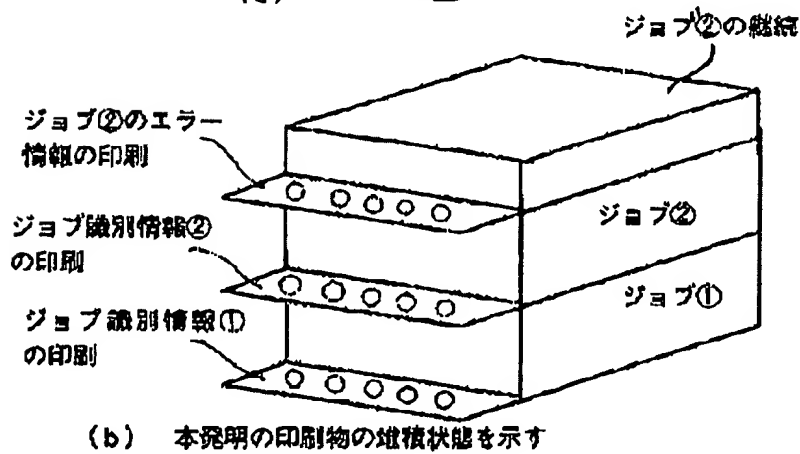
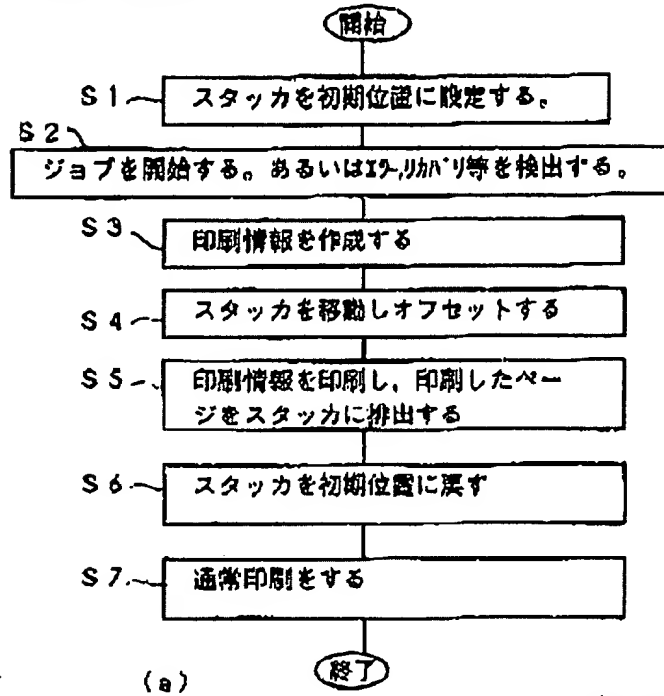
【図17】

従来の印刷装置のスタック方法

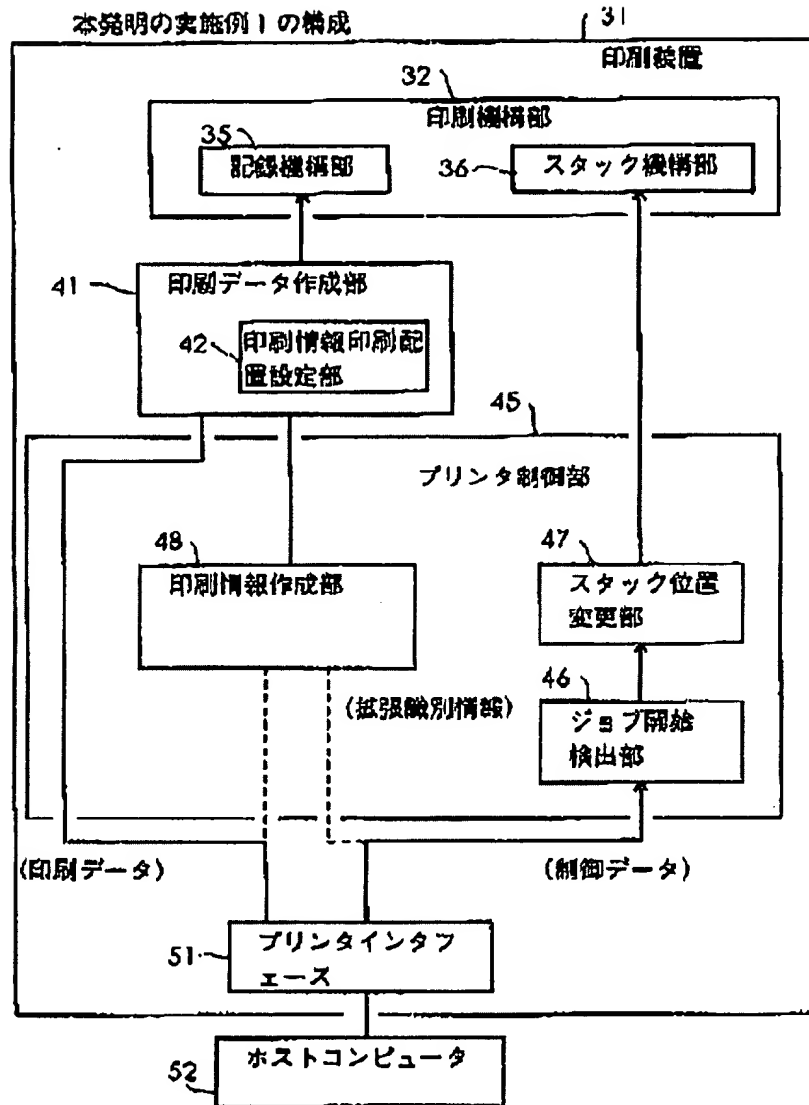


【図2】

本発明の基本構成の印刷装置の動作フローチャート
および堆積方法

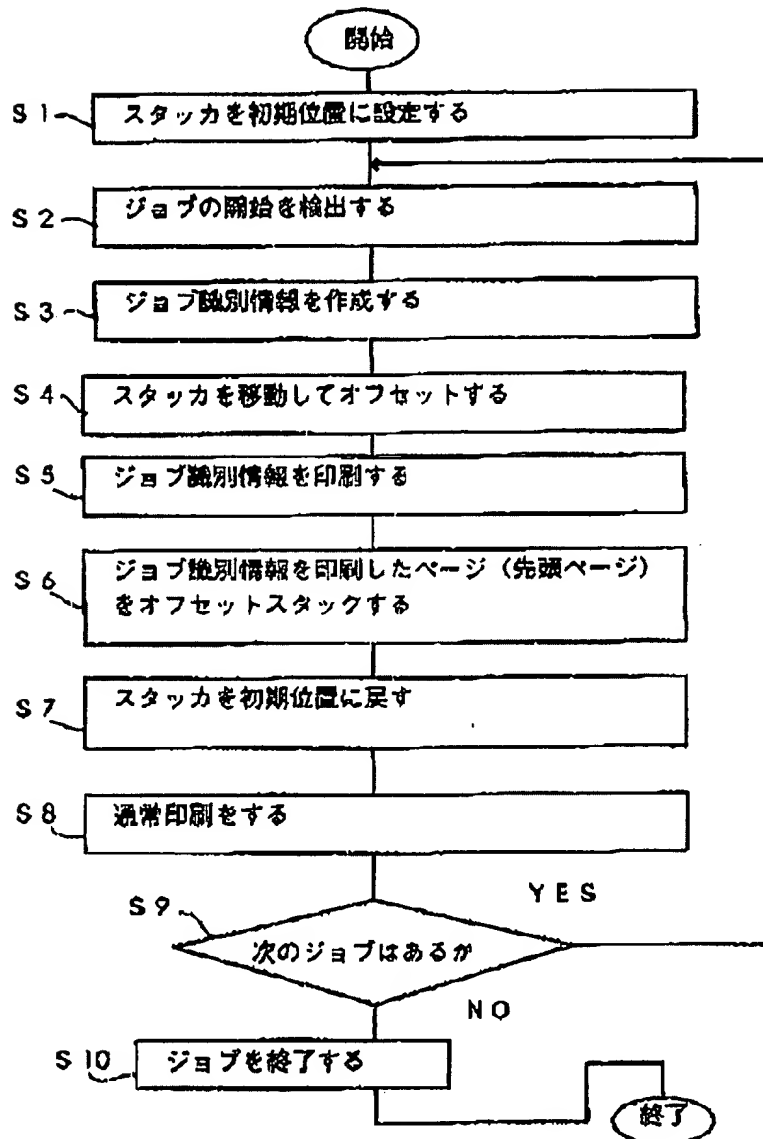


【図4】



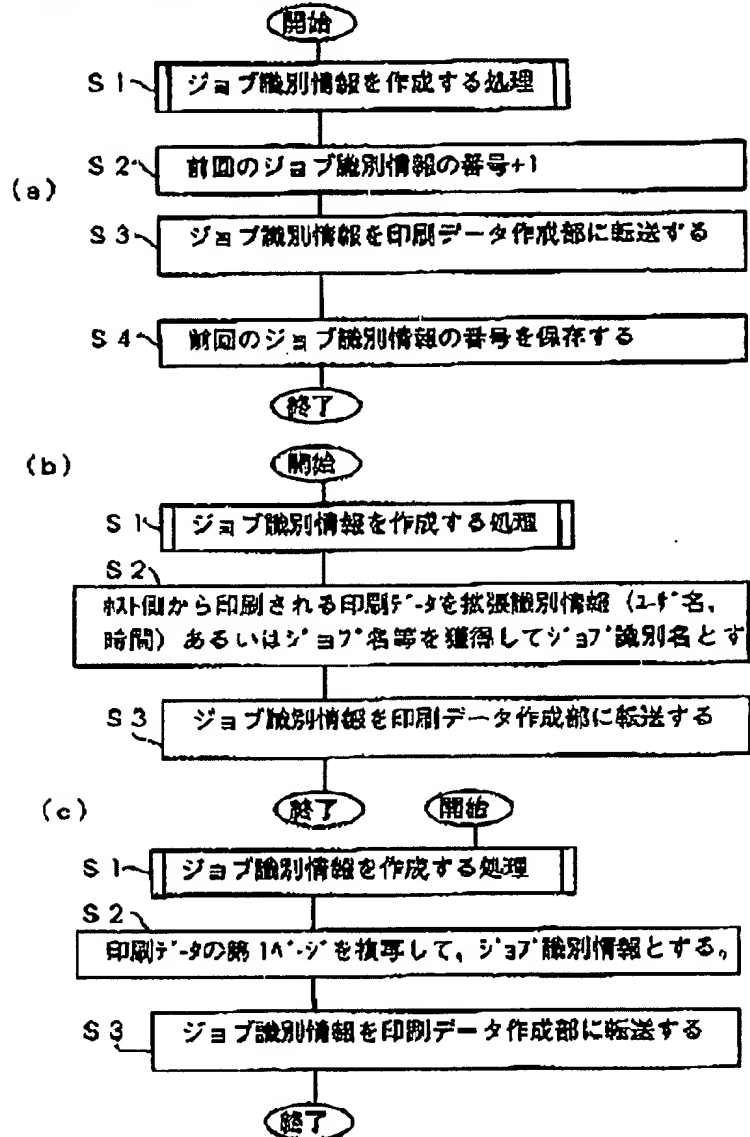
(図5)

本発明の実施例1の構成のフローチャート



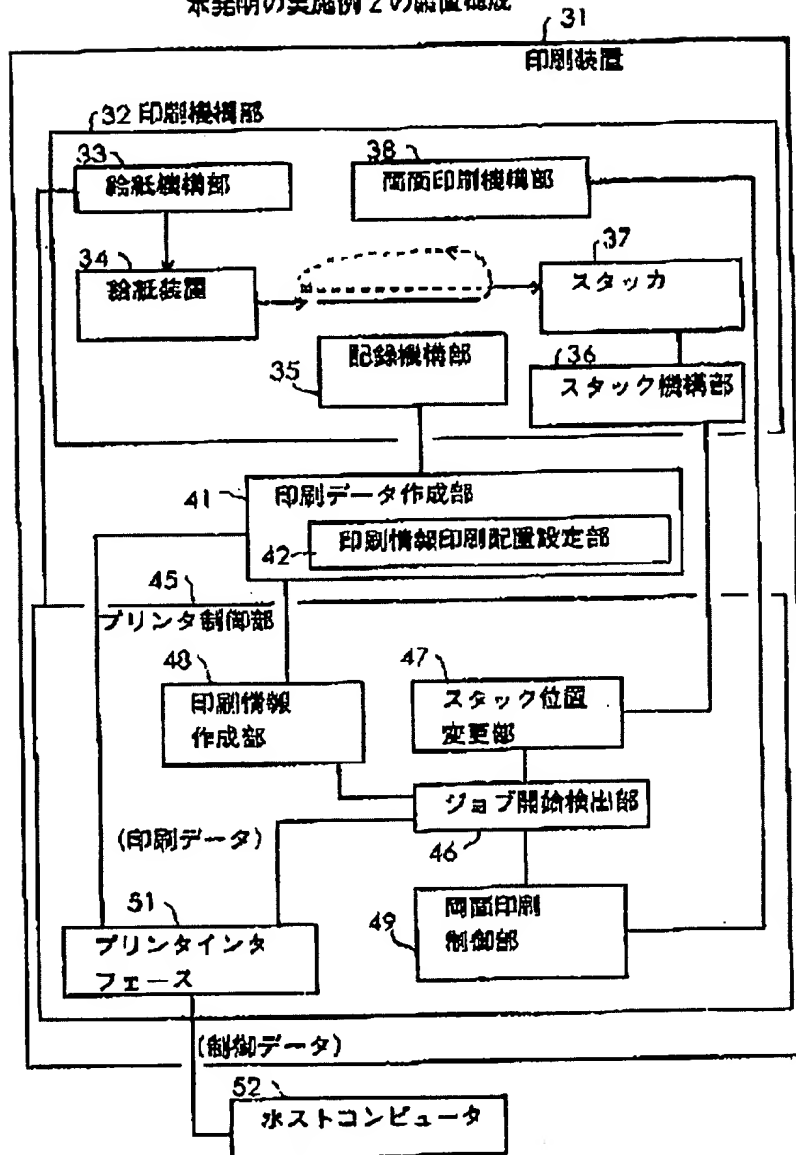
【図6】

本発明の印刷情報作成部の処理のフローチャートの実施例



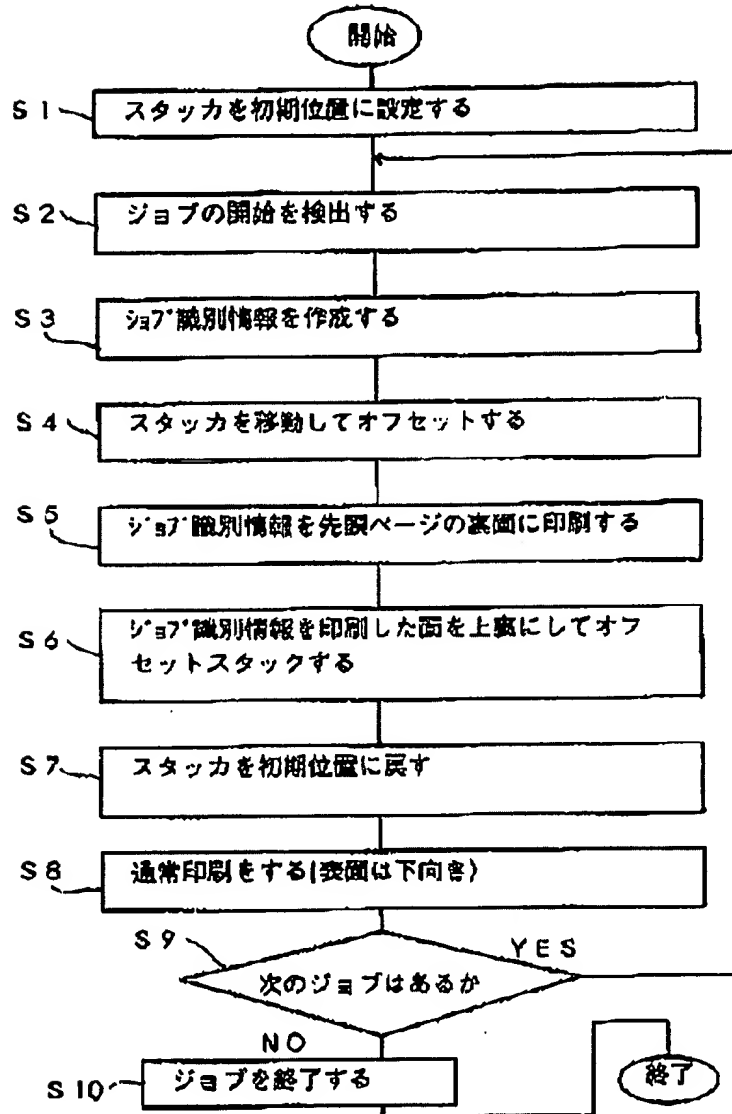
【図7】

本発明の実施例2の装置構成



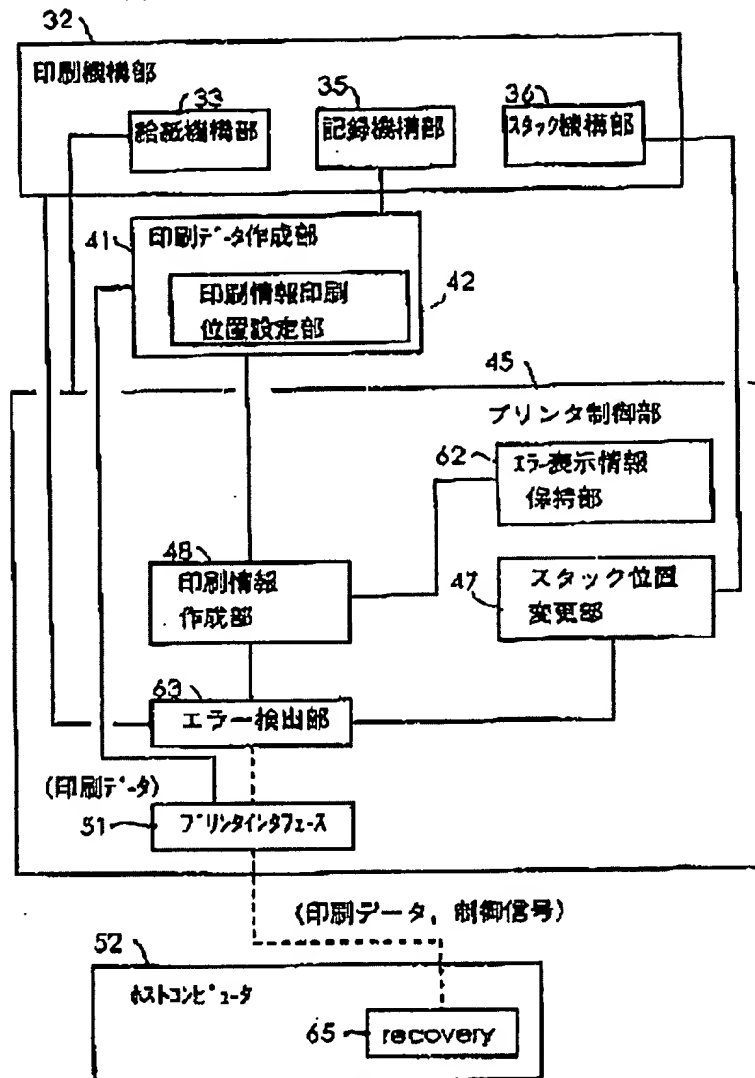
【図8】

本発明の実施例2の構成のフローチャート



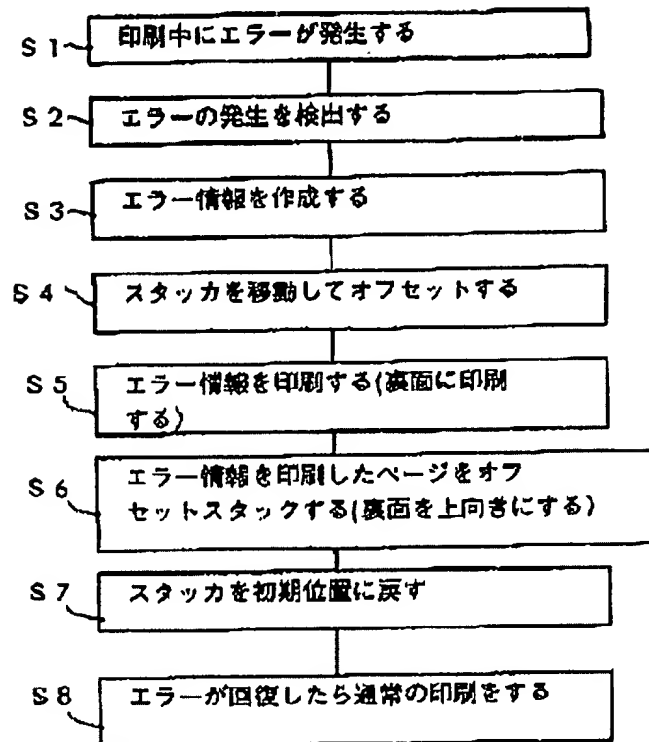
【図9】

本発明の実施例3の装置構成



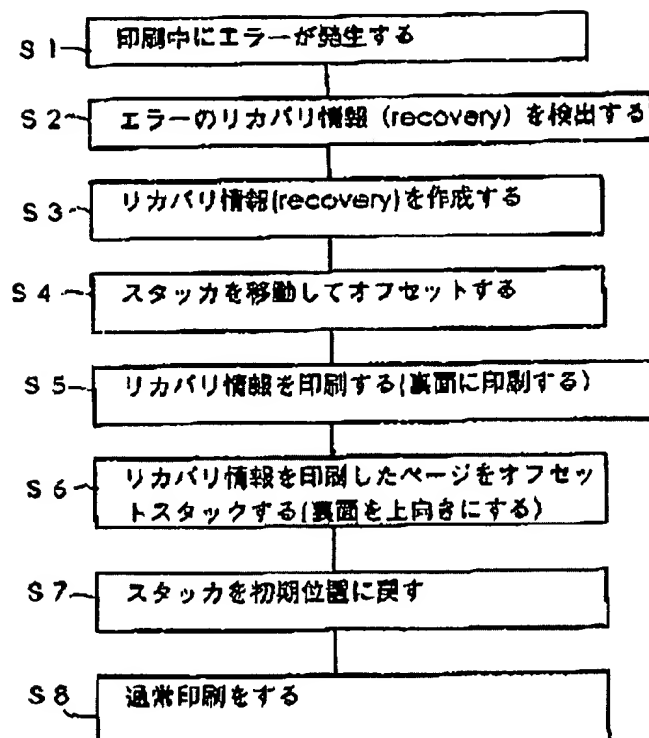
【図10】

本発明の実施例3のフローチャート1
(エラーの発生を表示する場合)

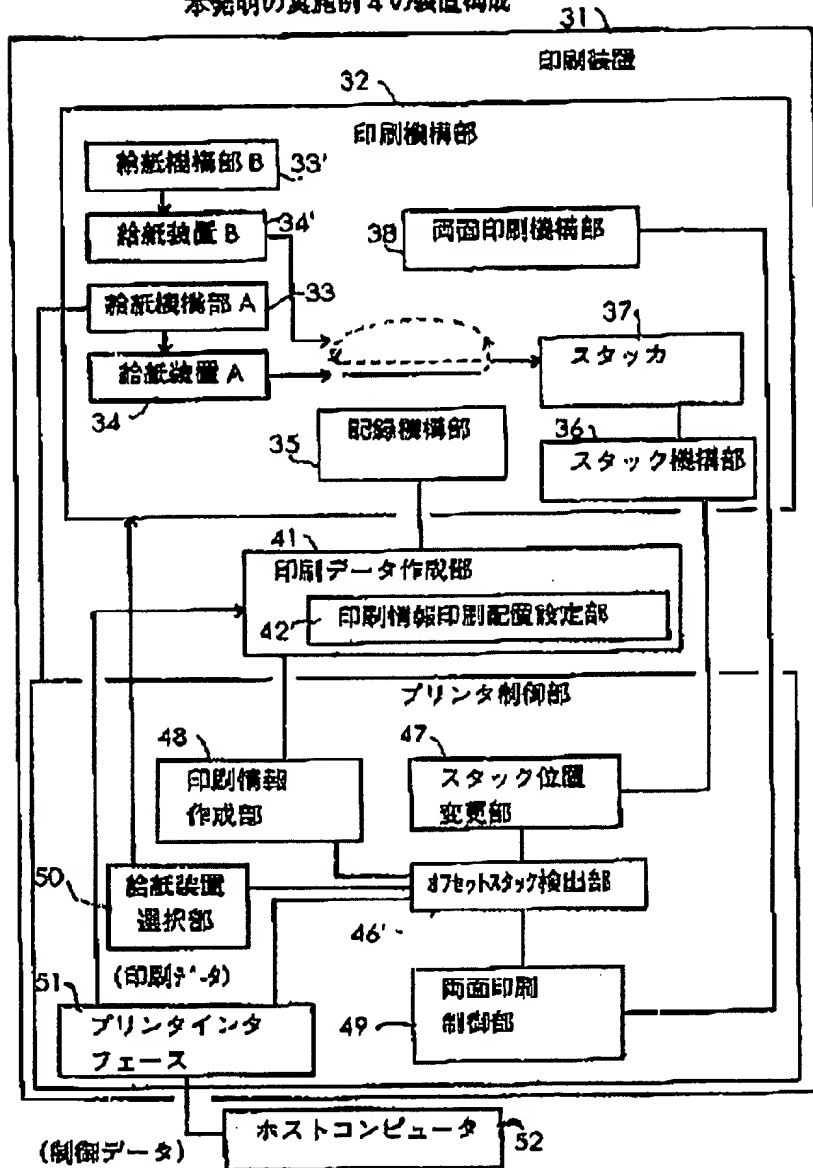


【図11】

本発明の実施例3のフローチャート2
(リカバリを表示する場合)

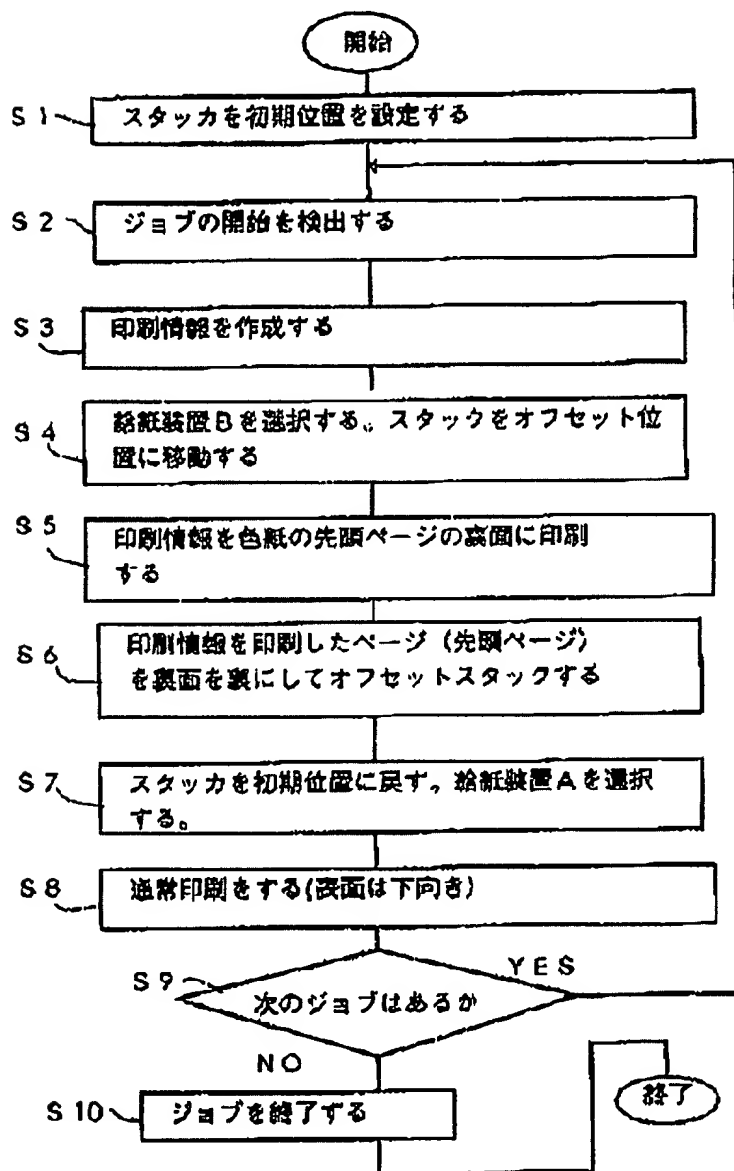


本発明の実施例 4 の装置構成

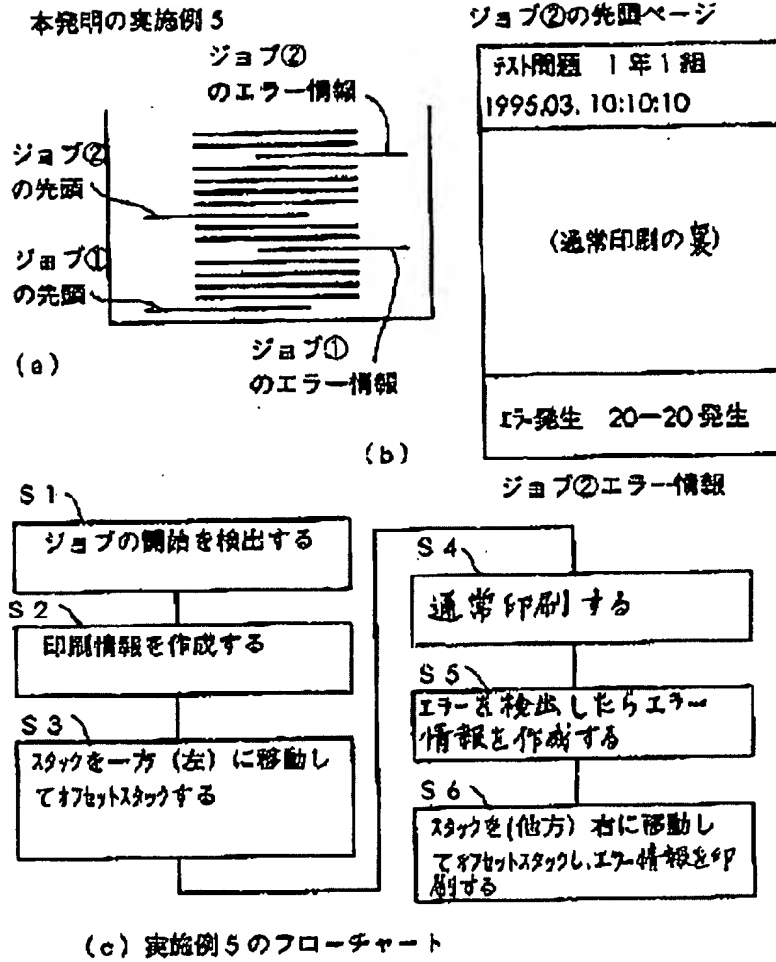


【図13】

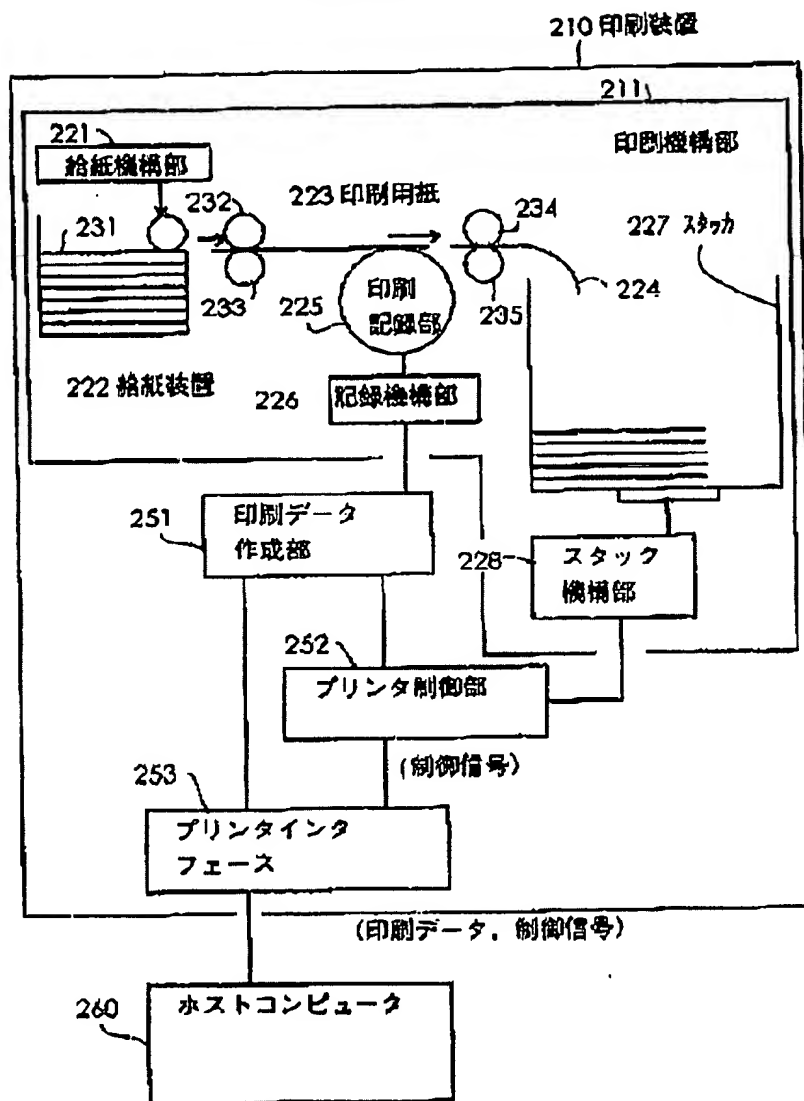
本発明の実施例4の装置構成のフローチャート



【図14】

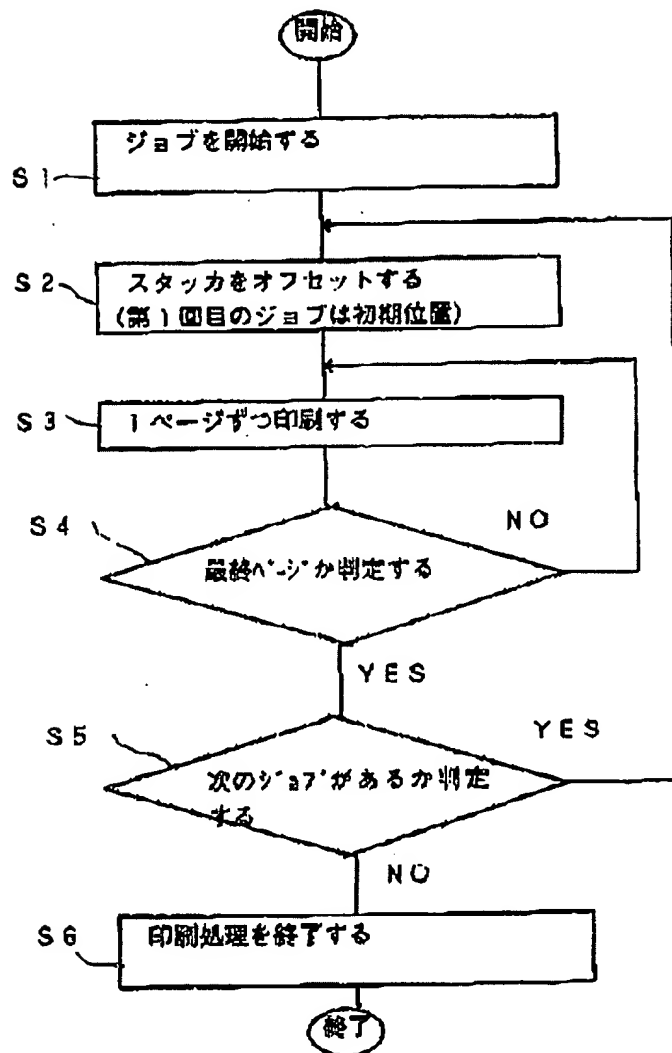


従来の技術



【図16】

従来の印刷装置の動作のフローチャート



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CLAIMS

[Claim(s)]

[Claim 1] It is the printer which prints the printed information showing the content of printing, or a printing state, carries out the offset stack of the printed page, and is characterized by for the page which printed original print data to return and discharge a stack position to an initial valve position in a printer equipped with the print station section which moves and offsets the stacker which deposits printing two or more jobs continuously and the page printed and discharged from an initial valve position.

[Claim 2] The printer according to claim 1 characterized by printing in the position which protruded printed information in the offset stack of a print sheet.

[Claim 3] The claim 1 characterized by printing printed information to the field is equipped with the double-sided print station section, and it turns [field] to a top in a stacker, or a printer given in 2,

[Claim 4] Printed information is the claims 1 and 2 characterized by being the job identification information showing the start of each job, or a printer given in 3.

[Claim 5] They are the claims 1, 2, and 3 characterized by carrying out the stack of the page which it had the detecting element which detects a heterology or the recovery of an error, and printed information is error information which notifies generating or this recovery of the abnormalities in printing, and this print station section moved the stacker following a heterology or recovery, and printed error information to an offset valve position, or a printer given in 4.

[Claim 6] The claims 1, 2, 3, and 4 which are equipped with two or more feeders which supply a print sheet, and the feed device-selector section which switches a feeder during printing, and are characterized by setting the print sheet B of a different color from this print sheet A in the feeder A which supplies the print sheet A for printing the data which should be printed, and a different feeder B, and printing this printed information with this print sheet B, or a printer given in 5.

[Claim 7] The claims 1, 2, 3, 4, and 5 characterized by being that from which the position of offset of job identification information and the position of offset of error information differ, or a printer given in 6.

[Translation done.]

* NOTICES *

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3. In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention relates to the printer which can carry out printing processing of two or more jobs continuously. When printing continuously two or more jobs with a lot of printing pages, it is necessary to make it a user understand easily the break of the job of the printing result by which the stack was carried out. this invention enables it to deposit printed matter on a stacker in such a printer, so that a user may understand easily the content for every job, error generating, etc. while enabling it to deposit a job stably.

[0002]

[Description of the Prior Art] Drawing 15 is the conventional printer. In drawing 15, 210 is a printer.

[0003] 211 is the print station section. 221 is the feed mechanism section, takes out at a time one sheet of print sheet currently held at feed equipment 222, and supplies it to the printing Records Department 225 side.

[0004] 222 is feed equipment and holds a print sheet. 223 is a print sheet and is a print sheet picked out from feed equipment 222.

[0005] 224 is the printed print sheet. 225 is the printing Records Department and records print data on a print sheet 223.

[0006] 226 is the recording mechanism section and drives the printing Records Department 225. 227 is a stacker and holds the printed print sheet. It is the stack mechanism section, and 228 is the mechanism in which a stacker 227 is driven, it moves a stacker and defines the deposition position of a print sheet.

[0007] 231 and 232, 233, 234, 235 are rollers and transport a print sheet 223 to a stacker 227 side from the feed equipment 222 side. 251 is the print-data creation section and creates the print data printed by the printing Records Department 225.

[0008] 252 is a printer control section, controls each mechanism section of the print station section 211, and print-data creation section 251 grade, and carries out printing control. 253 is a printer interface and inputs the print data and the control signal which are transmitted from a host computer 260.

[0009] 260 is a host computer. Drawing 16 is the flow chart of operation of the conventional printer. Drawing 17 is explanatory drawing of the stack method of the conventional printer.

[0010] In drawing 17, 227 is a stacker. Drawing 17 shows the case where the printing page of job ** and job ** is deposited (stack). After carrying out the stack of the printing page of job **, the offset stack of the stacker 227 is moved, offset and carried out. Moreover, in a stacker 227, the printed field (table) turns to the bottom and the rear face of printing is upward.

[0011] Operation of the composition of drawing 15 is explained with reference to drawing 16 and drawing 17. A printer interface 253 receives the print data and the control signal which are sent from a host computer 260. The printer control section 252 controls the print-data creation section 251, the feed mechanism section 221, the recording mechanism section 226, and the stack mechanism section 228 according to a control signal. At this time, a stacker is moved and offset by printing of the job of the 2nd henceforth. And the print-data creation section 251 transmits the received print data to the recording mechanism section 226 as print data formatted for example, per 1 page. If the print data for 1 page are transmitted to the recording mechanism section 226, it will be controlled by the feed mechanism section 221, one sheet of print sheet will be picked out from feed equipment 222, and it will be transported to the printing Records Department 225. Driving in the recording mechanism section 226, the printing Records Department 225 prints the print data for 1 page to a print sheet 223. The printed print sheet 224 is discharged by the stacker 227.

[0012] After all printings of job ** are completed, the stack mechanism section 228 moves and offsets a stacker 227 (refer to drawing 17). And the above-mentioned processing is repeated about job **, and is performed, and job ** is printed. Thus, the printed matter of job ** and job ** shifts and deposits only the amount of offset, and both enable it to distinguish.

[0013] Drawing 16 is the flow chart of operation of the conventional printer.

S1 A job is started.

S2 A stacker is offset (a stacker is moved to the position which carries out an offset stack (the offset stack of the 1st job is not carried out as an initial valve position)).

[0014] S3 It prints 1 page at a time.

S4 It judges in the last page of a job unit. If it is not the last page, the following page will be printed by S3. If it is the last page, it will progress to S5.

[0015] S5 It judges whether there is any following job, and if there is the following job, the processing after S2 will be repeated. If there is no following job, it will progress to S6.
S6 Printing processing is ended.

[0016]

[Problem(s) to be Solved by the Invention] Since the stack of all the pages was carried out to the offset valve position per job, when the stack of two or more jobs is carried out and the conventional printer picks out printed matter from a stacker, printed matter tended to collapse. Moreover, checking of what content each is a thing, although the distinction for every job is attached, since the printing side turned to the bottom in the stacker and the rear face has turned to the top was not completed if it remained as it is, but it had to turn the form over. And it was what the state of a stack may collapse then and it is hard to treat.

[0017] Moreover, it does not understand that abnormalities occur in printing, for example, an operator has duplication since it usually deposits on a passage even if the page same in having retransmitted a message to data for the error etc. overlaps and is printed, but the conventional printer was processed as it was.

[0018] this invention can deposit printed matter stably in a stacker, or even if there is no **** Japanese common chestnut **** about a form, it aims at offering the printer which can recognize the content of a job easily. Moreover, when abnormalities occur in printing, generating of abnormalities aims at offering the printer which can be recognized easily in the state where the stack is carried out to the stacker.

[0019]

[Means for Solving the Problem] this invention printed the printed information which expresses the content of printing, or a printing state in a printer equipped with the stack repositioning mechanism section which moves and offsets the stack which deposits printing two or more jobs continuously and the page printed and discharged from an initial valve position, and carried out the offset stack of the printed page, and the page which printed original print data returns a stack position to an initial valve position, and discharged it.

[0020] Drawing 1 is drawing showing the basic composition of this invention. In drawing 1, 1 is a printer.

[0021] 2 is the print station section and is the mechanism in which feeding of a print sheet, printing of print data, deposition of a print sheet, movement of a stacker 5, etc. are performed. 5 is a stacker and deposits the printed matter discharged.

[0022] 6 is the recording mechanism section and is a mechanism which prints print data to a print sheet. 7 is the stack mechanism section and is a mechanism which moves a stacker 5. 10 is the print-data creation section and creates the original print data and original printed information (job identification information or error information (generating information on an error, recovery information on recovery of an error, etc.)) which are recorded on a print sheet based on the print data transmitted from a host computer 13.

[0023] 11 is a printer control section and controls each mechanism section of the recording mechanism section 6, and the print-data creation section 10. 12 is a printer interface and inputs print data, a control signal, etc. which are transmitted from a host computer 13.

[0024] 13 is a host computer, creates print data and transmits them to a printer 1. Operation of the basic composition of this invention of drawing 1 is explained.

[0025] A printer interface 12 inputs the print data and the control signal which are transmitted from a host computer 13. The printer control section 11 controls the print-data creation section 10 and the print station section 2 according to a control signal. The print-data creation section 10 creates the print data formatted per 1 page in order to print by the recording mechanism section 6. It is controlled by the printer control section 11, and the stack mechanism section 7 moves and offsets a stacker 5, when an error is recovered when a job is started, or when an error occurs, and recovery information occurs. Usually, when the printed information (job identification information) or the error which expresses the content of a job to the page in front of the 1st page of printing (it considers as a head page) arises, the printed information (error information) showing the recovery of an error is printed, and an offset stack is carried out to a stacker 5. Then, the printer control section 11 controls the stack mechanism section 7, and returns the position of a stacker 5 to the original position (initial valve position). And the printing usual in the position of the stacker 5 is performed, and each printed PESH is deposited on a stacker 5.

[0026] When job ** is completed and there is job ** of a degree further, the printer control section 11 controls the stack mechanism section 7, and moves a stacker 5 to an offset valve position again. And the print-data creation section 10 creates the job identification information showing the content of job ** of a degree, and outputs it to the recording mechanism section 6. And the recording mechanism section 6 prints job identification information to a print sheet, and discharges it to a stacker 5 as a head page of job **. After occurrence of a head page is completed, the stack mechanism section 7 returns a stacker 5 to an initial valve position, and usually prints job **. Moreover, when generating of an error or the recovery of an error is made, the offset stack of the error information is printed and carried out.

[0027] Here, although the front face or rear face of a print sheet is sufficient as the position which prints job identification information, if it is made to print in the part which is a rear face and is usually especially protruded from deposition of printing by offset, the content of a job can be recognized easily, without returning the table of a print sheet.

[0028] Furthermore, since the offset stack of the error information is printed and carried out when the abnormalities in printing are detected and the abnormalities in printing occur, when PESH already printed before generating of an error of the printing start page continued after that by generating of an error, recovery, etc. is overlapped, the duplication can be recognized easily.

[0029] Drawing 2 (a) is the flow chart of operation of the printer of the basic composition of this invention.

S1 A stacker is set as an initial valve position.

S2 A job is started. Or the recovery of an error or an error etc. is detected.

[0030] S3 Printed information is created.

S4 A stacker is moved and offset.

S5 Printed information is printed and the printed page is discharged to a stacker.

[0031] S6 A stacker is returned to an initial valve position.

S7 It usually prints.

Drawing 2 (b) It is drawing showing the deposition state of the printed matter of this invention, and the state where the offset stack of the page which printed printed information was carried out is shown.

[0032] The offset stack of the page which printed job identification information ** is carried out like illustration, a stacker is returned to an initial valve position, the printing page of original of SHOBU ** is deposited, the offset stack of the page which next printed job identification information ** is carried out, a stacker is returned to the original position, and the printing page of original of job ** is deposited. And since the error occurred between job **, the offset stack of the error information is printed and carried out, and the state where the error was recovered and original printing was continued in the position of the original stacker is shown.

[0033] Therefore, when depositing all deposition of printed matter on the same position and printing a lot of jobs in succession two or more, deposition does not collapse. Moreover, since the break of a job can be recognized in the state where it deposited on the stacker when the break of a job can be recognized easily and SHOBU identification information is especially printed at the rear face of a head page like illustration, an operator can recognize the content of a job easily.

[0034] Furthermore, when the page printed when an error occurred, it recovered automatically, printing was continued and printing was resumed by the recovery of error generating and an error by printing error information as job identification information, and carrying out an offset stack overlaps the page before error generating and is printed, the duplicate page can be recognized certainly.

[0035]

[Embodiments of the Invention] Drawing 3 is the example of the job identification information of this invention.

Drawing 3 (a) makes the consecutive number of a job a job identifier.

[0036] Drawing 3 (b) displays extended identification information contained in print data, such as a user name and time, as job identification information. Drawing 3 (c) makes the job name displayed during job execution by the display by the side of a printer job identification information.

[0037] Drawing 3 (d) copies the 1st PESH of print data (original print data usually printed by printing), and is taken as job identification information. Drawing 3 When the error of the jam of a print sheet etc. occurs, (e) makes error information (drawing is the case of an error code) job identification information so that generating of an error may be known.

[0038] Drawing 3 (f) When an error is recovered and printing is continued, let the recovery information (recovery) transmitted from a host computer be printed information so that recovery may be known.

[0039] Drawing 4 is the composition of the example 1 of this invention, and is the composition in the case of carrying out the offset stack of the head page which printed job identification information as printed information by the start of a job.

[0040] In drawing 4, 31 is a printer, 32 is the print station section.

[0041] 35 is the recording mechanism section, 36 is the stack mechanism section, 41 is the print-data creation section.

[0042] 42 is the printed information printing arrangement setting section, and defines the printing position of job identification information, 45 is a printer control section.

[0043] 46 is a job start detecting element and detects the start of a job based on the control signal transmitted from a host computer 52. It is the stack repositioning section, 47 moves a stacker (not shown) by detection of a job start, offsets, and after it carries out the offset stack of the head page which printed job identification information, it is returned to the original position (initial valve position).

[0044] 48 is the printed information creation section and creates the job identification information printed to the head page which carries out an offset stack. Although job identification information may be information which only expresses the start of a job, you may make it express the content of a job. For example, extended identification information, such as a user name and printing time, is gained from a control signal, and it is good also as job identification information.

[0045] 51 is a printer interface, 52 is a host computer. Operation of the composition of the example 1 of this invention of drawing 4 is explained.

[0046] A printer interface 51 receives the print data and the control data which are transmitted from a host computer 52. In the job start detecting element 46, if a job detects a start, the stack repositioning section 47 will offset a stacker (not shown) in the stack mechanism section 36. The stack mechanism section 36 offsets a stacker. The printed information creation section 48 creates the job identification information printed to a head page. It is made for job identification information to be the fixed sense irrespective of the printing direction of original print data at this time, as usually printed by the position protruded by the offset stack irrespective of the sense of printing. The printed information creation section generates the consecutive number of a job. Or the user name of the printed matter created by the host side, time, a job name, etc. are gained from print data, and it considers as job

identification information. Or the 1st page of print data is copied and it considers as job identification information. In the print-data creation section 41, the printed information printing arrangement setting section 42 is set up so that job identification information may be printed in the position usually protruded from deposition of printing in the offset stack. The recording mechanism section 35 prints job identification information in the position where the print sheet was specified, and the stack mechanism section 36 carries out the offset stack of the head page.

[0047] After the offset stack of a head page is completed, the stack mechanism section 36 returns a stack to the original position, and the printer control section 45 and the print-data creation section 41 perform the usual printing processing.

[0048] In the composition of drawing 4, the printed information creation section 48 extracts extended identification information, such as a user name of a job, and the date and time of creation, from control data, and is good also considering it as job identification information. Furthermore, the printed information creation section 48 copies the 1st page of the usually printed print data, and by making the page [1st] copy into job identification information, it is printed to a head page and it may be made to carry out an offset stack.

[0049] Drawing 5 is the flow chart of the composition of the example 1 of this invention.

S1 A stacker is set as an initial valve position.

S2 The start of a job is detected.

[0050] S3 Job identification information is created.

S4 A stacker is moved and offset.

S5 Job identification information is printed.

[0051] S6 The offset stack of the page (head page) which printed job identification information is carried out.

S7 A stacker is returned to an initial valve position.

[0052] S8 It usually prints.

S9 It judges whether there is any following job, and if it is, the processing after S2 will be repeated. If there is nothing, it will progress to S10.

[0053] S10 A job is ended.

Drawing 6 is the example of the flow chart of the printed information creation section of this invention. Drawing 6 (a) is the case where the consecutive number of a job is created and given to job identification information.

[0054] S1 The processing which creates job identification information is started.

S2 1 is added to the number of the last job identification information, and the number of this job identification information is created.

[0055] S3 The number of the job identification information created this time is transmitted to the print-data creation section.

S4 The number of the last job identification information is saved.

Drawing 6 (b) is the case where the job name which it is contained in the print data transmitted from a host computer, and is displayed during printing in the display by the side of a printer is made into job identification information, when extracting extended identification information contained in the print data transmitted from a host computer, such as a user name and creation time, and considering as job identification information.

[0056] S1 The processing which creates job identification information is started.

S2 Extended identification information, such as a user name and creation time, is extracted from the print data transmitted from a host computer, and it considers as job identification information. Or the job name contained in the print data transmitted from a host computer is extracted, and it considers as SHOBU identification information.

[0057] S3 The created job identification information is transmitted to the print-data creation section.

Drawing 6 (c) is the case where copy the 1st page of print data (original print data to print), and it is made into job identification information.

[0058] S1 The processing which creates job identification information is started.

S2 The 1st page of print data (original print data) is copied, and it considers as job identification information.

[0059] S3 The created job identification information is transmitted to the print-data creation section.

Drawing 7 is the equipment configuration of the example 2 of this invention. Drawing 7 is the example composition in the case of having a perfecting machine style and printing job identification information at the rear face of the head page of a job.

[0060] In drawing 7, the same reference number as drawing 4 expresses the same portion. In the print station section 32, 33 is the feed mechanism section.

[0061] 34 is feed equipment. 38 is the double-sided print station section, and it reverses a print sheet so that the print sheet supplied to the recording mechanism section 35 may be turned over and it may print at the rear face.

[0062] In the printer control section 45, 49 is a double-sided printing control section, and controls the double-sided print station section 38. In the composition of drawing 7, the job start detecting element 46 directs rear-face printing to the double-sided printing control section 49, if the start of a job is detected (double-sided printing on [of operation] expedient does not interfere; either). The double-sided print station section 38 turns over the print sheet of the head page supplied to the recording mechanism section 35.

[0063] On the other hand, the stack repositioning section 47 directs an offset stack in the stack mechanism section 36 by detection of a start of the job of the job start detecting element 46. The stack mechanism section 36 moves and offsets a stacker 37. The printed information creation section 48 creates job identification information, and transmits it to the print-data creation section 41. The print-data creation section 41 is set as the position which usually protruded the position which prints job information from deposition of printing by the offset stack. The

recording mechanism section 35 prints job identification information in the position (position protruded by the aforementioned offset stack) where the rear face of a print sheet was specified. A table is returned to the head page which had job identification information printed by the rear face so that a rear face may turn up by the double-sided print station section 38 (reversed), and an offset stack is carried out to a stacker 37.

[0064] After the offset stack of a head page is completed, it is controlled by the stack mechanism section 36, a stacker 37 is returned to an initial valve position, and printing is usually made (if original printing is one side printing, double-sided printing will be canceled and it will deposit by turning a printing side (table) down.). If it is double-sided printing, double-sided printing will be continued.

[0065] In the composition of drawing 7, the job identification information creation section is created as job identification information like an example 1 with the copied data (a job name, extended identification information, or the 1st page) of usually printing.

[0066] Drawing 8 is the flow chart of the composition of the example 2 of this invention.

S1 A stacker is set as an initial valve position.

S2 The start of a job is detected.

[0067] S3 Job identification information is created.

S4 A stacker is moved and offset.

S5 Job identification information is printed at the rear face of a head page.

[0068] S6 The offset stack of the field (rear face) which printed job identification information is carried out and turned up.

S7 A stacker is returned to an initial valve position.

[0069] S8 It usually prints (a front face is downward).

S9 It judges whether there is any following job, and if it is, the processing after S2 will be repeated. If there is nothing, it will progress to S10.

[0070] S10 A job is ended.

Drawing 9 is the example 3 of the equipment configuration of this invention. When generating of an error is printed as printed information and carries out an offset stack, it is made as for the example 3 of this invention, for an operator to understand generating of an error easily, when an error occurs.

[0071] In drawing 9, the same number as drawing 4 or drawing 7 expresses the same portion. 62 is an error message information attaching part, and holds the information (for example, error code etc.) which carries out an error message.

[0072] 63 is the error detection section and detects the abnormalities (error) notified from the error of the jam of a print sheet generated in the print station section 32, or a host computer 52. Or recovery information is detected, when recovery (recovery) is sent from a host computer 52, after an error is recovered.

[0073] 65 expresses the recovery information (recovery) created in the host computer. The usual printing is the same as that of the above-mentioned, and a part of composition for it is having illustration omitted in drawing 9.

[0074] In the composition of drawing 9, operation at the time of carrying out error generating is explained.

** If an error occurs in the print station section 32 when detecting error generating and displaying error information, the error detection section 63 will detect generating of an error. And the printed information creation section 48 creates the display information for displaying generating of an error with reference to the error message information attaching part 62. For example, if an error code is displayed, the error message information attaching part 62 will hold the error code, and the printed information creation section 48 will make an error code error information. The error detection section 63 detects the error. If the error detection section 63 detects an error, the stack repositioning section 49 will notify an offset stack to the stack mechanism section 36. The stack mechanism section 36 moves and offsets a stacker (not shown).

[0075] The print-data creation section 41 acquires error message information from the error message information attaching part 62, creates error information, and transmits it to the recording mechanism section 35. The recording mechanism section 35 prints error information to a print sheet. The offset stack of the print sheet which had error information printed is carried out. After the stack of the page which printed error information is completed, it points to the stack repositioning section 49 returning a stack to the stack mechanism section 36 at an initial valve position, and the stack mechanism section 36 returns a stacker to an initial valve position.

[0076] And an error is recovered and the usual printing is continued.

** Although an error occurs and printing is interrupted temporarily when displaying the error information (recovery information) showing recovery when an error is recovered as printed information, when an error is recovered and printing is resumed, printing may be resumed from several pages before from the page which the error generated. If recovery (recovery) is notified from a host computer 52 when such, the printed information creation section 48 will create recovery information (recovery), and will print and carry out an offset stack.

[0077] If the error detection section 63 detects recovery, the stack repositioning section 49 will notify an offset stack to the stack mechanism section 36, and will offset a stacker. The printed information creation section 48 acquires the recovery information sent from a host computer, creates recovery information, and transmits it to the print-data creation section 41. The recording mechanism section 35 prints and carries out the offset stack of the recovery information. After the offset stack of the page which printed recovery information is completed, a stacker is returned to an initial valve position and printing is usually continued.

[0078] Generating of the error by the operator can be easily recognized by also in the case of drawing 9, printing and offsetting error message information and recovery information at the rear face of a print sheet, if a perfecting

machine style (not shown) is in a printer.

[0079] Drawing 10 is the flow chart 1 of the example 3 of this invention, and is the case where an error occurs and an error message is carried out.

S1 An error occurs during printing.

[0080] S2 Generating of an error is detected.

S3 Error information is created.

S4 A stacker is moved and offset.

[0081] S5 Error information is printed (if required, rear-face printing will be carried out).

S6 The offset stack of the page which printed error information is carried out.

S7 A stacker is returned to an initial valve position.

[0082] S8 The usual printing will be carried out if an error is recovered.

Drawing 11 is the flow chart 2 of the example 3 of this invention, and when an error is recovered and recovery information is received, it is the case where it is made for an operator to understand easily that the recovery of an error occurred, by printing and carrying out the offset stack of the recovery information.

[0083] S1 An error occurs during printing.

S2 The recovery information (recovery) on an error is detected.

S3 Recovery information (recovery) is created as printed information.

[0084] S4 A stacker is moved and offset.

S5 Recovery information is printed (if required, it will print at the rear face).

S6 The offset stack of the page which printed recovery information is carried out (a rear face is turned upward).

[0085] S7 A stacker is returned to an initial valve position.

S8 It usually prints.

Drawing 12 is the equipment configuration of the example 4 of this invention, is equipped with two or more feed equipments, sets colored paper to one set, and prints and carries out the offset stack of the printed information to a rear face, and usually, printing returns a stack to the original position and prints it.

[0086] In the composition of drawing 12, the same number as drawing 4, drawing 7, and drawing 9 is the same. In drawing 12, 33 is the feed mechanism section A and carries out feed control of feed equipment A (34).

[0087] 34 is feed equipment and usually supplies the print sheet of printing. 33' is the feed mechanism section B, and performs feed control of feed equipment B. 34' is feed equipment B and sets colored paper.

[0088] 46' is an offset stack detecting element, detects the start of a job, detection of error generating, and the recovery information on an error, and is equivalent to the above-mentioned job start detecting element and the error detection section.

[0089] 50 is the feed device-selector section and chooses feed equipment A (34) and feed equipment B (34'). In the composition of drawing 12, offset stack detecting-element 46' directs offset to a stacker 37 at the stack mechanism section 36, if the recovery information on the start of a job or error generating, and an error etc. is detected. The stack mechanism section 36 moves and offsets a stacker 37. The double-sided printing control section 49 directs double-sided printing in the double-sided print station section 38, if the notice of an offset stack is received from offset stack detecting-element 46'. Moreover, the feed device-selector section 50 chooses the feed mechanism section B, and colored paper is fed to the recording mechanism section 35 from the feed mechanism section B (33'). The print-data creation section 41 creates printed information, and transmits it to the print-data creation section 41. The print-data creation section 41 defines the printing position (position protruded by the offset stack) of printed information (the job identification information showing the start of a job, error information, recovery information, etc.), and transmits it to the recording mechanism section 35. The recording mechanism section 35 prints the transmitted printed information in the position protruded by the offset stack of the rear face of colored paper. The offset stack of the head page which had printed information printed is carried out.

[0090] Then, the stack mechanism section 36 returns the position of a stacker 37 to an initial valve position. Furthermore, the feed device-selector section 50 notifies to feed mechanism section A (33) that feed equipment A (34) is chosen. The print-data creation section 41 usually creates the print data of printing, and transmits them to the recording mechanism section 35. The recording mechanism section 35 carries out the usual printing to the print sheet to which paper is fed from feed equipment A (34). And the usual printed matter is deposited on the stack returned to the initial valve position.

[0091] Drawing 13 is the flow chart of the equipment configuration of the example 4 of this invention.

S1 A stacker is set as an initial valve position.

S2 The need for an offset stack is detected (the start of a job, detection of an error, detection of recovery information, etc.).

[0092] S3 Printed information is created.

S4 Feed equipment B is chosen. A stack is moved to an offset valve position.

S5 Printed information (the information and the error message information that the start of a job is expressed, recovery information, etc.) is printed at the rear face of the head page of colored paper.

[0093] S6 A rear face is turned up and the offset stack of the page (head page) which printed printed information is carried out.

S7 A stacker is returned to an initial valve position. Feed equipment A is chosen.

[0094] S8 It usually prints (a front face is downward).

S9 It judges whether there is any following job, and if it is, the processing after S2 will be repeated. If there is

nothing, it will progress to S10.

[0095] S10 A job is ended.

In addition, in the example 4 (composition of drawing 12) of this invention, it is also good to carry out the offset stack of the colored paper, without printing printed information.

[0096] Drawing 14 is the example 5 of this invention. The example 5 of this invention makes an offset stack three steps, and it is made to change the position of the offset stack of the job identification information of a job start, and error information.

[0097] Drawing 14 (a) is drawing which looked at the stacker from width. On the other hand (left-hand side in drawing), the offset stack of the head page (page which printed job identification information) of job ** is carried out. Next, a stacker is returned to the original position and the printing page of original of job ** is deposited. Then, since the error occurred, the offset stack of the error information of error generating is carried out to another side (right-hand side in drawing). Error recovery is carried out and the stack of the usual printing of job ** is carried out. Next, on the other hand (left-hand side in drawing), the head page which printed the SHOBU identification information of job ** is printed to an offset stack. A stacker is returned to the original position and usual printing of job ** is deposited. Then, since the error occurred, the offset stack of the page which printed error information is carried out to another side (right-hand side in drawing).

[0098] Drawing 14 (b) is drawing which looked at the stacker from the top, and can be recognized only by printed information (job identification information, error information) looking at a stacker from a top, without returning the table of printed matter. Drawing 14 (c) is the flow chart of the example 5 of this invention.

[0099] S1 A job start is detected.

S2 Job identification information is created.

S3 On the other hand (left), it moves, and the offset stack of the stack is carried out.

[0100] S4 It usually prints.

S5 Error information will be created if an error (or recovery) is detected.

S6 It moves to another side (right), the offset stack of the stacker is carried out, and error information is printed. If an error is recovered henceforth, a stack will be moved to the left, and printing is usually continued.

[0101]

[Effect of the Invention] According to this invention, when depositing all deposition of printed matter on the same position and printing a lot of jobs in succession two or more, deposition does not collapse. Moreover, since the break of a job can be recognized in the state where it deposited on the stacker when the break of a job can be recognized easily and job identification information is especially printed at the rear face of a print sheet, an operator can recognize the content of a job easily.

[0102] Furthermore, when the page printed when an error occurred, it recovered automatically, printing was continued and printing was resumed by the recovery of error generating and an error by printing error information as printed information and carrying out an offset stack overlaps the page before error generating and is printed, the duplicate page can be recognized certainly.

[0103] Therefore, according to this invention, when printing two or more jobs in large quantities, working capacity can be raised sharply.

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TECHNICAL FIELD

[The technical field to which invention belongs] this invention relates to the printer which can carry out printing processing of two or more jobs continuously. When printing continuously two or more jobs with a lot of printing pages, it is necessary to make it a user understand easily the break of the job of the printing result by which the stack was carried out. this invention enables it to deposit printed matter on a stacker in such a printer, so that a user may understand easily the contents for every job, error generating, etc. while enabling it to deposit a job stably.

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PRIOR ART

[Description of the Prior Art] Drawing 15 is the conventional printer. In drawing 15, 210 is a printer.

[0003] 211 is the print station section. 221 is the feed mechanism section, takes out at a time one sheet of print sheet currently held at feed equipment 222, and supplies it to the printing Records Department 225 side.

[0004] 222 is feed equipment and holds a print sheet. 223 is a print sheet and is a print sheet picked out from feed equipment 222.

[0005] 224 is the printed print sheet. 225 is the printing Records Department and records print data on a print sheet 223.

[0006] 226 is the recording mechanism section and drives the printing Records Department 225. 227 is a stacker and holds the printed print sheet. It is the stack mechanism section, and 228 is the mechanism in which a stacker 227 is driven, it moves a stacker and defines the deposition position of a print sheet.

[0007] 231 and 232, 233, 234, 235 are rollers and transport a print sheet 223 to a stacker 227 side from the feed equipment 222 side. 251 is the print-data creation section and creates the print data printed by the printing Records Department 225.

[0008] 252 is a printer control section, controls each mechanism section of the print station section 211, and print-data creation section 251 grade, and carries out printing control. 253 is a printer interface and inputs the print data and the control signal which are transmitted from a host computer 260.

[0009] 260 is a host computer. Drawing 16 is the flow chart of operation of the conventional printer. Drawing 17 is explanatory drawing of the stack method of the conventional printer.

[0010] In drawing 17, 227 is a stacker. Drawing 17 shows the case where the printing page of job ** and job ** is deposited (stack). After carrying out the stack of the printing page of job **, the offset stack of the stacker 227 is moved, offset and carried out. Moreover, in a stacker 227, the printed field (table) turns to the bottom and the rear face of printing is upward.

[0011] Operation of the composition of drawing 15 is explained with reference to drawing 16 and drawing 17. A printer interface 253 receives the print data and the control signal which are sent from a host computer 260. The printer control section 252 controls the print-data creation section 251, the feed mechanism section 221, the recording mechanism section 226, and the stack mechanism section 228 according to a control signal. At this time, a stacker is moved and offset by printing of the job of the 2nd henceforth. And the print-data creation section 251 transmits the received print data to the recording mechanism section 226 as print data formatted for example, per 1 page. If the print data for 1 page are transmitted to the recording mechanism section 226, it will be controlled by the feed mechanism section 221, one sheet of print sheet will be picked out from feed equipment 222, and it will be transported to the printing Records Department 225. Driving in the recording mechanism section 226, the printing Records Department 225 prints the print data for 1 page to a print sheet 223. The printed print sheet 224 is discharged by the stacker 227.

[0012] After all printings of job ** are completed, the stack mechanism section 228 moves and offsets a stacker 227 (refer to drawing 17). And the above-mentioned processing is repeated about job **, and is performed, and job ** is printed. Thus, the printed matter of job ** and job ** shifts and deposits only the amount of offset, and both enable it to distinguish.

[0013] Drawing 16 is the flow chart of operation of the conventional printer.

S1 A job is started.

S2 A stacker is offset (a stacker is moved to the position which carries out an offset stack (the offset stack of the 1st job is not carried out as an initial valve position)).

[0014] S3 It prints 1 page at a time.

S4 It judges in the last page of a job unit. If it is not the last page, the following page will be printed by S3. If it is the last page, it will progress to S5.

[0015] S5 It judges whether there is any following job, and if there is the following job, the processing after S2 will be repeated. If there is no following job, it will progress to S6.

S6 Printing processing is ended.

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EFFECT OF THE INVENTION

[Effect of the Invention] According to this invention, when depositing all deposition of printed matter on the same position and printing a lot of jobs in succession two or more, deposition does not collapse. Moreover, since the break of a job can be recognized in the state where it deposited on the stacker when the break of a job can be recognized easily and job identification information is especially printed at the rear face of a print sheet, an operator can recognize the contents of a job easily.

[0102] Furthermore, when the page printed when an error occurred, it recovered automatically, printing was continued and printing was resumed by the recovery of error generating and an error by printing error information as printed information and carrying out an offset stack overlaps the page before error generating and is printed, the duplicate page can be recognized certainly.

[0103] Therefore, according to this invention, when printing two or more jobs in large quantities, working capacity can be raised sharply.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] Since the stack of all the pages was carried out to the offset valve position per job, when the stack of two or more jobs is carried out and the conventional printer picks out printed matter from a stacker, printed matter tended to collapse. Moreover, checking of what contents each is a thing, although the distinction for every job is attached, since the printing side turned to the bottom in the stacker and the rear face has turned to the top was not completed if it remained as it is, but it had to turn the form over. And it was what the state of a stack may collapse then and it is hard to treat.

[0017] Moreover, it does not understand that abnormalities occur in printing, for example, an operator has duplication since it usually deposits on a passage even if the page same in having retransmitted a message to data for the error etc. overlaps and is printed, but the conventional printer was processed as it was.

[0018] this invention can deposit printed matter stably in a stacker, or even if there is no **** Japanese common chestnut **** about a form, it aims at offering the printer which can recognize the content of a job easily. Moreover, when abnormalities occur in printing, generating of abnormalities aims at offering the printer which can be recognized easily in the state where the stack is carried out to the stacker.

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MEANS

[Means for Solving the Problem] this invention printed the printed information which expresses the content of printing, or a printing state in a printer equipped with the stack repositioning mechanism section which moves and offsets the stack which deposits printing two or more jobs continuously and the page printed and discharged from an initial valve position, and carried out the offset stack of the printed page, and the page which printed original print data returns a stack position to an initial valve position, and discharged it.

[0020] Drawing 1 is drawing showing the basic composition of this invention. In drawing 1, 1 is a printer.

[0021] 2 is the print station section and is the mechanism in which feeding of a print sheet, printing of print data, deposition of a print sheet, movement of a stacker 5, etc. are performed. 5 is a stacker and deposits the printed matter discharged.

[0022] 6 is the recording mechanism section and is a mechanism which prints print data to a print sheet. 7 is the stack mechanism section and is a mechanism which moves a stacker 5. 10 is the print-data creation section and creates the original print data and original printed information (job identification information or error information (generating information on an error, recovery information on recovery of an error, etc.)) which are recorded on a print sheet based on the print data transmitted from a host computer 13.

[0023] 11 is a printer control section and controls each mechanism section of the recording mechanism section 6, and the print-data creation section 10. 12 is a printer interface and inputs print data, a control signal, etc. which are transmitted from a host computer 13.

[0024] 13 is a host computer, creates print data and transmits them to a printer 1. Operation of the basic composition of this invention of drawing 1 is explained.

[0025] A printer interface 12 inputs the print data and the control signal which are transmitted from a host computer 13. The printer control section 11 controls the print-data creation section 10 and the print station section 2 according to a control signal. The print-data creation section 10 creates the print data formatted per 1 page in order to print by the recording mechanism section 6. It is controlled by the printer control section 11, and the stack mechanism section 7 moves and offsets a stacker 5, when an error is recovered when a job is started, or when an error occurs, and recovery information occurs. Usually, when the printed information (job identification information) or the error which expresses the content of a job to the page in front of the 1st page of printing (it considers as a head page) arises, the printed information (error information) showing the recovery of an error is printed, and an offset stack is carried out to a stacker 5. Then, the printer control section 11 controls the stack mechanism section 7, and returns the position of a stacker 5 to the original position (initial valve position). And the printing usual in the position of the stacker 5 is performed, and each printed PESH is deposited on a stacker 5.

[0026] When job ** is completed and there is job ** of a degree further, the printer control section 11 controls the stack mechanism section 7, and moves a stacker 5 to an offset valve position again. And the print-data creation section 10 creates the job identification information showing the content of job ** of a degree, and outputs it to the recording mechanism section 6. And the recording mechanism section 6 prints job identification information to a print sheet, and discharges it to a stacker 5 as a head page of job **. After occurrence of a head page is completed, the stack mechanism section 7 returns a stacker 5 to an initial valve position, and usually prints job **. Moreover, when generating of an error or the recovery of an error is made, the offset stack of the error information is printed and carried out.

[0027] Here, although the front face or rear face of a print sheet is sufficient as the position which prints job identification information, if it is made to print in the part which is a rear face and is usually especially protruded from deposition of printing by offset, the content of a job can be recognized easily, without returning the table of a print sheet.

[0028] Furthermore, since the offset stack of the error information is printed and carried out when the abnormalities in printing are detected and the abnormalities in printing occur, when PESH already printed before generating of an error of the printing start page continued after that by generating of an error, recovery, etc. is overlapped, the duplication can be recognized easily.

[0029] Drawing 2 (a) is the flow chart of operation of the printer of the basic composition of this invention.

S1 A stacker is set as an initial valve position.

S2 A job is started. Or the recovery of an error or an error etc. is detected.

[0030] S3 Printed information is created.

S4 A stacker is moved and offset.

S5 Printed information is printed and the printed page is discharged to a stacker.

[0031] S8 A stacker is returned to an initial valve position.

S7 It usually prints.

Drawing 2 (b) It is drawing showing the deposition state of the printed matter of this invention, and the state where the offset stack of the page which printed printed information was carried out is shown.

[0032] The offset stack of the page which printed job identification information ** is carried out like illustration, a stacker is returned to an initial valve position, the printing page of original of SHOBU ** is deposited, the offset stack of the page which next printed job identification information ** is carried out, a stacker is returned to the original position, and the printing page of original of job ** is deposited. And since the error occurred between job **, the offset stack of the error information is printed and carried out, and the state where the error was recovered and original printing was continued in the position of the original stacker is shown.

[0033] Therefore, when depositing all deposition of printed matter on the same position and printing a lot of jobs in succession two or more, deposition does not collapse. Moreover, since the break of a job can be recognized in the state where it deposited on the stacker when the break of a job can be recognized easily and SHOBU identification information is especially printed at the rear face of a head page like illustration, an operator can recognize the contents of a job easily.

[0034] Furthermore, when the page printed when an error occurred, it recovered automatically, printing was continued and printing was resumed by the recovery of error generating and an error by printing error information as job identification information, and carrying out an offset stack overlaps the page before error generating and is printed, the duplicate page can be recognized certainly.

[0035]

[Embodiments of the Invention] Drawing 3 is the example of the job identification information of this invention.

Drawing 3 (a) makes the consecutive number of a job a job identifier.

[0036] Drawing 3 (b) displays extended identification information contained in print data, such as a user name and time, as job identification information. Drawing 3 (c) makes the job name displayed during job execution by the display by the side of a printer job identification information.

[0037] Drawing 3 (d) copies the 1st PESH of print data (original print data usually printed by printing), and is taken as job identification information. Drawing 3 When the error of the jam of a print sheet etc. occurs, (e) makes error information (drawing is the case of an error code) job identification information so that generating of an error may be known.

[0038] Drawing 3 (f) When an error is recovered and printing is continued, let the recovery information (recovery) transmitted from a host computer be printed information so that recovery may be known.

[0039] Drawing 4 is the composition of the example 1 of this invention, and is the composition in the case of carrying out the offset stack of the head page which printed job identification information as printed information by the start of a job.

[0040] In drawing 4, 31 is a printer. 32 is the print station section.

[0041] 35 is the recording mechanism section. 36 is the stack mechanism section, 41 is the print-data creation section.

[0042] 42 is the printed information printing arrangement setting section, and defines the printing position of job identification information. 45 is a printer control section.

[0043] 46 is a job start detecting element and detects the start of a job based on the control signal transmitted from a host computer 52. It is the stack repositioning section, 47 moves a stacker (not shown) by detection of a job start, offsets, and after it carries out the offset stack of the head page which printed job identification information, it is returned to the original position (initial valve position).

[0044] 48 is the printed information creation section and creates the job identification information printed to the head page which carries out an offset stack. Although job identification information may be information which only expresses the start of a job, you may make it express the content of a job. For example, extended identification information, such as a user name and printing time, is gained from a control signal, and it is good also as job identification information.

[0045] 51 is a printer interface. 52 is a host computer. Operation of the composition of the example 1 of this invention of drawing 4 is explained.

[0046] A printer interface 51 receives the print data and the control data which are transmitted from a host computer 52. In the job start detecting element 46, if a job detects a start, the stack repositioning section 47 will offset a stacker (not shown) in the stack mechanism section 36. The stack mechanism section 36 offsets a stacker. The printed information creation section 48 creates the job identification information printed to a head page. It is made for job identification information to be the fixed sense irrespective of the printing direction of original print data at this time, as usually printed by the position protruded by the offset stack irrespective of the sense of printing. The printed information creation section generates the consecutive number of a job. Or the user name of the printed matter created by the host side, time, a job name, etc. are gained from print data, and it considers as job identification information. Or the 1st page of print data is copied and it considers as job identification information. In the print-data creation section 41, the printed information printing arrangement setting section 42 is set up so that job identification information may be printed in the position usually protruded from deposition of printing in the offset stack. The recording mechanism section 35 prints job identification information in the position where the print sheet was specified, and the stack mechanism section 36 carries out the offset stack of the head page.

[0047] After the offset stack of a head page is completed, the stack mechanism section 36 returns a stack to the

original position, and the printer control section 45 and the print-data creation section 41 perform the usual printing processing.

[0048] In the composition of drawing 4, the printed information creation section 48 extracts extended identification information, such as a user name of a job, and the date and time of creation, from control data, and is good also considering it as job identification information. Furthermore, the printed information creation section 48 copies the 1st page of the usually printed print data, and by making the page [1st] copy into job identification information, it is printed to a head page and it may be made to carry out an offset stack.

[0049] Drawing 5 is the flow chart of the composition of the example 1 of this invention.

S1 A stacker is set as an initial valve position.

S2 The start of a job is detected.

[0050] S3 Job identification information is created.

S4 A stacker is moved and offset.

S5 Job identification information is printed.

[0051] S6 The offset stack of the page (head page) which printed job identification information is carried out.

S7 A stacker is returned to an initial valve position.

[0052] S8 It usually prints.

S9 It judges whether there is any following job, and if it is, the processing after S2 will be repeated. If there is nothing, it will progress to S10.

[0053] S10 A job is ended.

Drawing 6 is the example of the flow chart of the printed information creation section of this invention. Drawing 6 (a) is the case where the consecutive number of a job is created and given to job identification information.

[0054] S1 The processing which creates job identification information is started.

S2 1 is added to the number of the last job identification information, and the number of this job identification information is created.

[0055] S3 The number of the job identification information created this time is transmitted to the print-data creation section.

S4 The number of the last job identification information is saved.

Drawing 6 (b) is the case where the job name which it is contained in the print data transmitted from a host computer, and is displayed during printing in the display by the side of a printer is made into job identification information, when extracting extended identification information contained in the print data transmitted from a host computer, such as a user name and creation time, and considering as job identification information.

[0056] S1 The processing which creates job identification information is started.

S2 Extended identification information, such as a user name and creation time, is extracted from the print data transmitted from a host computer, and it considers as job identification information. Or the job name contained in the print data transmitted from a host computer is extracted, and it considers as SHOBU identification information.

[0057] S3 The created job identification information is transmitted to the print-data creation section.

Drawing 6 (c) is the case where copy the 1st page of print data (original print data to print), and it is made into job identification information.

[0058] S1 The processing which creates job identification information is started.

S2 The 1st page of print data (original print data) is copied, and it considers as job identification information.

[0059] S3 The created job identification information is transmitted to the print-data creation section.

Drawing 7 is the equipment configuration of the example 2 of this invention. Drawing 7 is the example composition in the case of having a perfecting machine style and printing job identification information at the rear face of the head page of a job.

[0060] In drawing 7, the same reference number as drawing 4 expresses the same portion. In the print station section 32, 33 is the feed mechanism section.

[0061] 34 is feed equipment. 38 is the double-sided print station section, and it reverses a print sheet so that the print sheet supplied to the recording mechanism section 35 may be turned over and it may print at the rear face.

[0062] In the printer control section 45, 49 is a double-sided printing control section, and controls the double-sided print station section 38. In the composition of drawing 7, the job start detecting element 48 directs rear-face printing to the double-sided printing control section 49, if the start of a job is detected (double-sided printing on [of operation] expedient does not interfere, either). The double-sided print station section 38 turns over the print sheet of the head page supplied to the recording mechanism section 35.

[0063] On the other hand, the stack repositioning section 47 directs an offset stack in the stack mechanism section 36 by detection of a start of the job of the job start detecting element 48. The stack mechanism section 36 moves and offsets a stacker 37. The printed information creation section 48 creates job identification information, and transmits it to the print-data creation section 41. The print-data creation section 41 is set as the position which usually protruded the position which prints job information from deposition of printing by the offset stack. The recording mechanism section 35 prints job identification information in the position (position protruded by the aforementioned offset stack) where the rear face of a print sheet was specified. A table is returned to the head page which had job identification information printed by the rear face so that a rear face may turn up by the double-sided print station section 38 (reversed), and an offset stack is carried out to a stacker 37.

[0064] After the offset stack of a head page is completed, it is controlled by the stack mechanism section 36, a stacker 37 is returned to an initial valve position, and printing is usually made (if original printing is one side printing).

double-sided printing will be canceled and it will deposit by turning a printing side (table) down.). If it is double-sided printing, double-sided printing will be continued.

[0085] In the composition of drawing 7, the job identification information creation section is created as job identification information like an example 1 with the copied data (a job name, extended identification information, or the 1st page) of usually printing.

[0086] Drawing 8 is the flow chart of the composition of the example 2 of this invention.

S1 A stacker is set as an initial valve position.

S2 The start of a job is detected.

[0087] S3 Job identification information is created.

S4 A stacker is moved and offset.

S5 Job identification information is printed at the rear face of a head page.

[0088] S6 The offset stack of the field (rear face) which printed job identification information is carried out and turned up.

S7 A stacker is returned to an initial valve position.

[0089] S8 It usually prints (a front face is downward).

S9 It judges whether there is any following job, and if it is, the processing after S2 will be repeated. If there is nothing, it will progress to S10.

[0070] S10 A job is ended.

Drawing 9 is the example 3 of the equipment configuration of this invention. When generating of an error is printed as printed information and carries out an offset stack, it is made as for the example 3 of this invention, for an operator to understand generating of an error easily, when an error occurs.

[0071] In drawing 9, the same number as drawing 4 or drawing 7 expresses the same portion. 62 is an error message information attaching part, and holds the information (for example, error code etc.) which carries out an error message.

[0072] 63 is the error detection section and detects the abnormalities (error) notified from the error of the jam of a print sheet generated in the print station section 32, or a host computer 52. Or recovery information is detected, when recovery (recovery) is sent from a host computer 52, after an error is recovered.

[0073] 65 expresses the recovery information (recovery) created in the host computer. The usual printing is the same as that of the above-mentioned, and a part of composition for it is having illustration omitted in drawing 9.

[0074] In the composition of drawing 9, operation at the time of carrying out error generating is explained.

** If an error occurs in the print station section 32 when detecting error generating and displaying error information, the error detection section 63 will detect generating of an error. And the printed information creation section 48 creates the display information for displaying generating of an error with reference to the error message information attaching part 62. For example, if an error code is displayed, the error message information attaching part 62 will hold the error code, and the printed information creation section 48 will make an error code error information. The error detection section 63 detects the error. If the error detection section 63 detects an error, the stack repositioning section 49 will notify an offset stack to the stack mechanism section 36. The stack mechanism section 36 moves and offsets a stacker (not shown).

[0075] The print-data creation section 41 acquires error message information from the error message information attaching part 62, creates error information, and transmits it to the recording mechanism section 35. The recording mechanism section 35 prints error information to a print sheet. The offset stack of the print sheet which had error information printed is carried out. After the stack of the page which printed error information is completed, it points to the stack repositioning section 49 returning a stack to the stack mechanism section 36 at an initial valve position, and the stack mechanism section 36 returns a stacker to an initial valve position.

[0076] And an error is recovered and the usual printing is continued.

** Although an error occurs and printing is interrupted temporarily when displaying the error information (recovery information) showing recovery when an error is recovered as printed information, when an error is recovered and printing is resumed, printing may be resumed from several pages before from the page which the error generated. If recovery (recovery) is notified from a host computer 52 when such, the printed information creation section 48 will create recovery information (recovery), and will print and carry out an offset stack.

[0077] If the error detection section 63 detects recovery, the stack repositioning section 49 will notify an offset stack to the stack mechanism section 36, and will offset a stacker. The printed information creation section 48 acquires the recovery information sent from a host computer, creates recovery information, and transmits it to the print-data creation section 41. The recording mechanism section 35 prints and carries out the offset stack of the recovery information. After the offset stack of the page which printed recovery information is completed, a stacker is returned to an initial valve position and printing is usually continued.

[0078] Generating of the error by the operator can be easily recognized by also in the case of drawing 9, printing and offsetting error message information and recovery information at the rear face of a print sheet, if a perfecting machine style (not shown) is in a printer.

[0079] Drawing 10 is the flow chart 1 of the example 3 of this invention, and is the case where an error occurs and an error message is carried out.

S1 An error occurs during printing.

[0080] S2 Generating of an error is detected.

S3 Error information is created.

S4 A stacker is moved and offset.

[0081] S5 Error information is printed (if required, rear-face printing will be carried out).

S8 The offset stack of the page which printed error information is carried out.

S7 A stacker is returned to an initial valve position.

[0082] S8 The usual printing will be carried out if an error is recovered.

Drawing 11 is the flow chart 2 of the example 3 of this invention, and when an error is recovered and recovery information is received, it is the case where it is made for an operator to understand easily that the recovery of an error occurred, by printing and carrying out the offset stack of the recovery information.

[0083] S1 An error occurs during printing.

S2 The recovery information (recovery) on an error is detected.

S3 Recovery information (recovery) is created as printed information.

[0084] S4 A stacker is moved and offset.

S5 Recovery information is printed (if required, it will print at the rear face).

S8 The offset stack of the page which printed recovery information is carried out (a rear face is turned upward).

[0085] S7 A stacker is returned to an initial valve position.

S8 It usually prints.

Drawing 12 is the equipment configuration of the example 4 of this invention, is equipped with two or more feed equipments, sets colored paper to one set, and prints and carries out the offset stack of the printed information to a rear face, and usually, printing returns a stack to the original position and prints it.

[0086] In the composition of drawing 12, the same number as drawing 4, drawing 7, and drawing 9 is the same. In drawing 12, 33 is the feed mechanism section A and carries out feed control of feed equipment A (34).

[0087] 34 is feed equipment and usually supplies the print sheet of printing. 33' is the feed mechanism section B, and performs feed control of feed equipment B. 34' is feed equipment B and sets colored paper.

[0088] 46' is an offset stack detecting element, detects the start of a job, detection of error generating, and the recovery information on an error, and is equivalent to the above-mentioned job start detecting element and the error detection section.

[0089] 50 is the feed device-selector section and chooses feed equipment A (34) and feed equipment B (34'). In the composition of drawing 12, offset stack detecting-element 46' directs offset to a stacker 37 at the stack mechanism section 36, if the recovery information on the start of a job or error generating, and an error etc. is detected. The stack mechanism section 36 moves and offsets a stacker 37. The double-sided printing control section 49 directs double-sided printing in the double-sided print station section 38, if the notice of an offset stack is received from offset stack detecting-element 46'. Moreover, the feed device-selector section 50 chooses the feed mechanism section B, and colored paper is fed to the recording mechanism section 35 from the feed mechanism section B (33'). The print-data creation section 41 creates printed information, and transmits it to the print-data creation section 41. The print-data creation section 41 defines the printing position (position protruded by the offset stack) of printed information (the job identification information showing the start of a job, error information, recovery information, etc.), and transmits it to the recording mechanism section 35. The recording mechanism section 35 prints the transmitted printed information in the position protruded by the offset stack of the rear face of colored paper. The offset stack of the head page which had printed information printed is carried out. [0090] Then, the stack mechanism section 36 returns the position of a stacker 37 to an initial valve position. Furthermore, the feed device-selector section 50 notifies to feed mechanism section A (33) that feed equipment A (34) is chosen. The print-data creation section 41 usually creates the print data of printing, and transmits them to the recording mechanism section 35. The recording mechanism section 35 carries out the usual printing to the print sheet to which paper is fed from feed equipment A (34). And the usual printed matter is deposited on the stack returned to the initial valve position.

[0091] Drawing 13 is the flow chart of the equipment configuration of the example 4 of this invention.

S1 A stacker is set as an initial valve position.

S2 The need for an offset stack is detected (the start of a job, detection of an error, detection of recovery information, etc.).

[0092] S3 Printed information is created.

S4 Feed equipment B is chosen. A stack is moved to an offset valve position.

S5 Printed information (the information and the error message information that the start of a job is expressed, recovery information, etc.) is printed at the rear face of the head page of colored paper.

[0093] S6 A rear face is turned up and the offset stack of the page (head page) which printed printed information is carried out.

S7 A stacker is returned to an initial valve position. Feed equipment A is chosen.

[0094] S8 It usually prints (a front face is downward).

S9 It judges whether there is any following job, and if it is, the processing after S2 will be repeated. If there is nothing, it will progress to S10.

[0095] S10 A job is ended.

In addition, in the example 4 (composition of drawing 12) of this invention, it is also good to carry out the offset stack of the colored paper, without printing printed information.

[0096] Drawing 14 is the example 5 of this invention. The example 5 of this invention makes an offset stack three steps, and it is made to change the position of the offset stack of the job identification information of a job start.

and error information.

[0097] Drawing 14 (a) is drawing which looked at the staker from width. On the other hand (left-hand side in drawing), the offset stack of the head page (page which printed job identification information) of job ** is carried out. Next, a staker is returned to the original position and the printing page of original of job ** is deposited. Then, since the error occurred, the offset stack of the error information of error generating is carried out to another side (right-hand side in drawing). Error recovery is carried out and the stack of the usual printing of job ** is carried out. Next, on the other hand (left-hand side in drawing), the head page which printed the SHOBU identification information of job ** is printed to an offset stack. A staker is returned to the original position and usual printing of job ** is deposited. Then, since the error occurred, the offset stack of the page which printed error information is carried out to another side (right-hand side in drawing).

[0098] Drawing 14 (b) is drawing which looked at the staker from the top, and can be recognized only by printed information (job identification information, error information) looking at a staker from a top, without returning the table of printed matter. Drawing 14 (c) is the flow chart of the example 5 of this invention.

[0099] S1 A job start is detected.

S2 Job identification information is created.

S3 On the other hand (left), it moves, and the offset stack of the stack is carried out.

[0100] S4 It usually prints,

S5 Error information will be created if an error (or recovery) is detected.

S6 It moves to another side (right), the offset stack of the staker is carried out, and error information is printed. If an error is recovered henceforth, a stack will be moved to the left, and printing is usually continued.

[Translation done.]

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1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. *** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

- [Drawing 1]** It is drawing showing the basic composition of this invention.
- [Drawing 2]** It is drawing showing the operation flow chart and the deposition method of a printer of the basic composition of this invention.
- [Drawing 3]** It is drawing showing the example of the printed information of this invention.
- [Drawing 4]** It is drawing showing the composition of the example 1 of this invention.
- [Drawing 5]** It is drawing showing the flow chart of the composition of the example 1 of this invention.
- [Drawing 6]** It is drawing showing the example of the flow chart of processing of the job identification information creation section of this invention.
- [Drawing 7]** It is drawing showing the equipment configuration of the example 2 of this invention.
- [Drawing 8]** It is drawing showing the flow chart of the composition of the example 2 of this invention.
- [Drawing 9]** It is drawing showing the equipment configuration of the example 3 of this invention.
- [Drawing 10]** It is drawing showing the flow chart 1 of the example 3 of this invention.
- [Drawing 11]** It is drawing showing the flow chart 2 of the example 3 of this invention.
- [Drawing 12]** It is drawing showing the equipment configuration of the example 4 of this invention.
- [Drawing 13]** It is drawing showing the flow chart of the equipment configuration of the example 4 of this invention.
- [Drawing 14]** It is drawing showing the example 5 of this invention.
- [Drawing 15]** It is drawing showing a Prior art.
- [Drawing 16]** It is drawing showing the flow chart of operation of the conventional printer.
- [Drawing 17]** It is drawing showing the stack method of the conventional printer.

[Description of Notations]

- 1: Printer
- 2: Print station section
- 5: Stacker
- 6: Recording mechanism section
- 7: Stack mechanism section
- 10: Print-data creation section
- 11: Printer control section
- 12: Printer interface
- 13: Host computer

[Translation done.]